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Shadows and Straws

HAVE YOU EVER BEEN BITTEN by the quality standardization bug? It is a persistent little encephaloid, unclassed as yet by the entomologists, but its proboscis is laden with some subtle poison, the effect of which seems to be agreeable to a goodly number of people. Soon after the sting, which appears to be painless, the brain becomes aglow with the pleasant dream of a standardized universe, in which everything from a pin to a planet has been classified, catalogued, indexed, numbered, cross-referenced, and then settled forever. In the matter of making buildings, the standardization passion is manifesting itself to an annoying extent. Everything is to be standardized and resolved into a finality. Then, with the help of the various "services" that exist, whereby we may have, for ten cents, or for nothing, the detailed plans of any building and thus possess ourselves of the brains of our best architects, we shall be certain of creating a great American architecture. If the quality standardization bug has pricked your skin and infected your being properly, this prospect is a joyous one. A building will be put together with no more difficulty than that which is involved in the dictation of a series of combinations in which letters and numbers will not only write the specifications but produce the plan and design.

You will borrow a door from Mr. White, a classic colonnade from Mr. Black, a loggia from Smith, Brown & Jones, a roof from Mr. Green; by a minute arrangement of decimals you will, of course, be able to borrow the whole or any small part. Then from your standardized list of standardized materials you will prescribe, by number and letter, the standardized materials that are to go into the standardized building. The standardized process of creating any building can be thus compressed into a standardized half-hour of standardized study, or perhaps an hour if one is not too busy. Architecture will have been reduced to a practical profession, and business men will worship at its shrine. They will applaud a system, where they once frowned upon an art!

STANDARDIZATION OF ANYTHING in respect to quality is almost always a compromise. It is the result of that popular conception of law as a cure for any given situation. A standard is only a law, and a law is only a compromise. It is invoked because society, having found no way to stimulate and produce an honest and kindly human relation, resolves to try to compel honesty and kindliness through the penalty or fear of punishment, for a law without a punishment provided for infraction would be no law at all. Slowly and painfully the world is coming to see—at least that is our hope—that law is not the answer; that law does not remove causes, except in a few cases and by indirection; that punishment does not produce human kindness, but quite the contrary. Prison reform is already an accepted need.

Now quality standardization is a compromise, resorted to because, under our competitive system, we have found no other way of insuring a quality in products upon which we could rely for safety and durability and appearance. It is the struggle for profits which has broken down quality in both men and things. Science and invention, the beneficial functions of which are

to improve and perfect, have more often been used to cheapen and imperfect. The condition has reached a stage where it has become necessary to put an end to some of the cheapening, for men have gone so far in this blind struggle for profits as to be willing to risk the lives of those who build and of those who live in the buildings. Manifestly this cannot go on, and certain standards of manufacture have already become accepted as insuring safety at least.

But can you imagine anything more joyless than a world reduced to standards? Our industrial process has broken the heart of man with its pitiless monotony, and yet there are those who would gleefully monotonize it still further by standardizing,—wherever they could lay hands upon a product that had not yet been inhumanly standardized by the process of machine manufacture. It is always the product, and not the man, which gets consideration, and yet it is by these very processes of substituting one autocratic brain for many democratic brains that we have debrained our workers everywhere. The brain atrophies, like everything else, when not used! And it is useless to debrain a population by removing the need for brains from its working tasks and then expect to educate it in its idle moments.

Standards of Size We Must Have, undoubtedly, but let us be chary of applying them indiscriminately to quality and always mindful of the fact that they are compromises—stepping stones, if you will—toward a better system of production and manufacture; toward a system wherein men shall be encouraged to exercise their brains and their love of doing good work, in order to make things better and more beautiful. No standard can be a finality, but only a halting-place. Generally, it is a compromise between the best and the worst; seldom is it based on the best. Yet there it stands, when created, as a difficult barrier toward betterment. Man is not encouraged to do better, but to be content with the standard, which means mediocrity, for that which is not the best is mediocre. It answers the purpose for the moment, but it leaves the taste of staleness in the mouth.

I believe that, in practical attempts at standardization, the American Society for Testing Materials has done valuable work, and that there is a proper function for the Bureau of Standards and other bodies doing similar work. But until we have an *American Society for Preventing the Atrophy of Brain and Body under our System of Standardized Production, and of Thereby Reëstablishing the Principles of Liberty and Equality upon Which This Republic was Founded and of Securing to All Our People Who Work with Hand or Brain the Right to a Wholesome Physical Existence and the Equally Precious Right to Exercise Their Brains and Their Creative Impulses in Their Work*, we shall find that standards are of small avail in helping us onward in the only direction that claims our interest—a better land, giving more happiness, more freedom, more art, and ever more and more of all these things. Then we shall have found the only reason why industry has a right to exist—for the service of mankind. Quality standards and standardists alike will have disappeared, along with the other patent remedies, born, as they were, out of the brains of doctors who were trying to cure a disease they were wholly unable to diagnose.

And it hardly seems necessary to dwell upon the fact that the whole process is a failure from an economic point of view, for we are always finding that our dollar buys us less, even after the standardists have wreaked the full measure of their passion. It ought to be apparent that we are traveling on the wrong road, but we are like a mad mob, caught in the toils, and seeing nothing to do but move on with the rest, lest we be crushed in trying to escape. Only Thought will save us, and for most people Thought is bound hand and foot by the manacles of Self-Interest. The Standard is the only answer of which they are capable, although the whole world today is protesting against the barren monotony of life under the lash of standardized industry.

Architecture and quality standardization are violently opposed to each other. The one is based upon invention and creation, upon the search for beauty, the quest for perfection, the joy of expressing joy in work; the other is based upon the relentless servitude exacted by the law of profit, upon work made into drudgery, upon life reduced to the pulsation of a machine and harnessed to the clang of a bell, the shriek of a whistle, the tick of a clock, the calendar on the wall. Heaven deliver us from the quality

standardists and their ways! They mean more subjugation to the mind of man.

"I have systematically tried to turn fiction to the good account of showing the preventable wretchedness and misery in which the masses of the people dwell, and of expressing again and again the conviction, founded upon observation, that the reform of their habitations must precede all other reforms, and that without it all other reforms must fail."

Thus wrote Charles Dickens sixty years ago, but in the land that Dickens has peopled with immortal characters, habitations are still wretched and misery still abounds. All over the world there is a critical condition, ranging all the way from squalor and wretchedness to more or less acute degrees of discomfort. The architect, studying the situation with an open mind, may well conclude that never, since people took to living in houses, would a dollar buy so little in house value, and that never have living conditions been relatively more oppressive and more difficult. Between the acute shortage in houses on the one hand, which bears heavily upon slender incomes, and the equally acute shortage of servants on the other hand, which is annoying to those of larger incomes, an architect may well be convinced that the time has come to search for an entirely new method of housing people of all grades and conditions—a method by which convenience and efficacy would take precedence over every other condition, so that houses would and could be conducted with a very considerable diminution in the burdens of housekeeping. And, if he has carefully studied the question of the house, as applied to all humans, he will be convinced beyond the peradventure of a doubt that nowhere are convenience and efficacy so badly needed as in the homes of those who live meagerly and patiently within the limits of the workman's wage. How to build houses of this latter kind, within reach of the rent that can be paid, the architect knows not, so costly has building become.

The Problem which Dickens discovered and concluded to be fundamental to all other reforms is tangled up with many complexities. I wonder if even he was aware of what housing reform really means. What would he have said of the efforts that England has made in the past toward a correction of the preventable wretchedness and misery in which the masses of the people dwell? We credit Charles Dickens with having been a pioneer in many reforms. Prisons are better today in England because of his story of Marshalsea, and because of Charles Reade's "It Is Never Too Late to Mend." But houses, alas, are no better, and England, faced with a problem of housing its workers through the coming winter, may well view the prospect with feelings of alarm.

All over the world, or at least in the civilized parts of it, the same situation prevails, and what Dickens said sixty years ago is truer than ever today. In his own land there have been many efforts to right the wrong, but the latest effort to which Parliament has given its sanction goes much further than anything yet attempted. The new Housing Bill is significant in two ways. Those bills which have preceded it have been in the nature of permissive laws, designed to encourage better housing. They gave power to municipalities to go into the housing business. The new law is compulsory. It obliges communities to provide decent houses, under penalty of having the sovereign State step in and provide them by assessing the cost on the community. A time limit is prescribed in which all towns and cities must present a diagnosis of their needs and a plan for providing for them.

No State Has Ever Gone so far in attempting to deal with the question of houses, and yet England has gone much further than that in the present bill, for she has embarked upon the principle of a subsidy to house-building. In plain words, she has decided to pay a part of the rent for good houses out of the national treasury! This is certainly a concession which was wrung from her by housing conditions such as constituted a menace to her safety, and it cannot, by any stretch of the imagination, be considered as a cure for the housing problem. You cannot subsidize rents without increasing taxes, and the very bill itself fastens an increased tax rate upon the towns it obliges to provide houses. A penny in the pound is the new levy prescribed, and the proceeds are to be applied to the interest and upkeep charge on the houses. But as it is expected that even this new tax will not provide sufficient funds to pay the

charges, when added to the rentals received, the State agrees to stand the difference, whatever that difference may be. In London alone it is estimated at $5,000,000 a year!

Here is no new principle, but the application of an old one. Once again the State is besought to help undo the evil wrought by its citizens, under the theory that the cost of undoing it must be borne by the whole people and not by those who caused it. But the situation, serious as it is, is not yet sufficiently dangerous to compel England to her senses, although one wonders, day by day, how far toward the edge of the precipice she is willing to go. The answer of the Trades Union Congress at Glasgow was seemingly unmistakable! But even when Parliament was aware of the danger, the old vested interests were able to secure a Land Acquisition Act which will go far to nullify all the benefits that were expected to accrue from the passage of the Housing Bill.

In Our Own Country we might pick up a newspaper anywhere, and read such an observation as this from the *Detroit News:*

"Families facing the elements in tents on the threshold of winter, other families being put on the sidewalks, other families seeking refuge with charitable organizations, and all with money to hire a roof at a fair price, in a city of the size and caliber of Detroit, represents a situation the public can view with nothing but deep concern.

"With the single difference that the condition is giving warning as it advances, it is analogous to a disaster by fire or flood or plague, whereby the city is reduced to emergent measures to check suffering and restore stability.

"Clearly the municipal government must face it with the same determination and resourcefulness with which it would cope with any other abnormal visitation; plans offered are many and various; but the responsibility is on the city government, and just as if a tidal wave had driven thousands of Detroiters out of their homes, so must there be measures of relief for the Detroiters who have been driven from their homes at this time through no fault of their own.

"Out of the multifarious suggestions, or from some constructive mind yet to be plumbed, a plan must come straightway whereby this city can release itself from the menace of a disaster that grows blacker with every passing day. But leadership rests with the elected government of Detroit, and the public expects it to rise to the needs of the occasion."

The "housing problem" is spreading upward, attacking not only the poor but those much higher in the scale. It will continue so to reach upward, yet the man who today in Detroit put forth the one fundamental upon which a solution of the housing problem might rest would no doubt be rent into rags and tatters, or even crucified as well. The shoe has not yet pinched hard enough.

New Zealand has just had a Housing and Town Planning Conference of a very intelligent kind, such as is badly needed in the United States, which adopted, among others, the following resolutions:

"That the principles of town planning should be applied to New Zealand, and town-planning schemes prepared without delay. That for this purpose legislation is necessary in the form of a Town Planning and Housing Act. That there be a Town Planning and Housing Department, and an expert town-planner appointed, the department to have supervision over all town-planning schemes. That it is advisable to appoint a Central Town Planning Commission to consist of the town-planner and four other experts in engineering, architecture, surveying, and public health.

"That the betterment principle (to be payable either in land or in money) embodied in Clause 19 (7) * should be amended to provide that a special valuation should be made in areas covered by town-planning schemes at the earliest possible date; such valuation to serve as a standard of comparison for the purpose of levying a special betterment rate when it has become evident that land values have increased, owing to preparations for or the carrying out of a scheme."

Once again, if these provisions are enacted into law, New Zealand will have gone a long way ahead of the mother country, for she will have provided against the blight of speculation in land and the mutilation of her projected improvements through high land values held at her throat. Indeed, the time has come when it is necessary to publish abroad the fact that no town plan, or city plan, or any town-planning legislation is worth the paper it is printed on unless it provides for land control, and that, without such control, all plans for housing reform are as moths to a candle.

When the World Needs so much in food and shelter, the rescue of ancient ruins seems almost unworthy of an appeal; yet it is difficult not to hope that the English Government may find some way to preserve the ancient city of Caerwent. It is announced that the site upon which it stands is to be sold, and there are fears

*The Town Planning Bill of New Zealand, published at length in the Journal for December, 1918, shows the original clause as providing that the State should receive one-half of the value added to land through any town-planning scheme.

that the ruins will thus be exposed to destruction. The site is in Monmouthshire, and the city was the Venta Silurum of the Antonine itineraries and the Caruen of Domesday. Its walls, still standing, are upward of twenty-five feet high, while two of the gateways are in quite as good order as when the Roman legions marched through them for the last time, and that was fifteen centuries ago.

The London Society of Antiquaries, in exploring the site, made discoveries of great interest, for there came to light foundations indicating great buildings, both public and domestic, baths, a forum, temples, frescoed panels, mosaic floors, and a great variety of pottery and coins. Perhaps it is only a clinging sentiment that makes us wish for the preservation of these things, but may it not be that we instinctively hug to our bosoms what shreds of Old-World beauty we can find as an unconscious protest against the lack of beauty in our new world, even though we remain equally unconscious of the fact that the ugliness we have made of our cities of today is quite our own fault, and not an unhappy accident.

Already, in Respect to the vanishing Old World, the English press is often calling attention to architectural losses. No one who cares for these things, for no matter what reason, can contemplate their increasing destruction without a keen regret. From the *Daily News* (London) we clip the following:

"One of the most beautiful rows of Queen Anne and Georgian houses in London is to disappear—the score of delightful dwellings on the north side of Clapham Common.

"For years they have worn a semi-forlorn aspect, and the thick curtains of ancient creepers have wrapped them as in a shroud. The creepers hide much of the beauty of the architecture—said to be from the designs of Wren—but enough is visible to show that the disappearance of these houses will be a real loss to London.

"The houses are on the site where the new Westminster Hospital buildings are to be erected—a scheme postponed on account of the war. The row is uninterrupted by any modern incongruity; there is spaciousness between the houses and the road; and the shadows of old elms fall on the gardens. The doorways are most charming, and the wrought-iron gates of fine scroll-work—some with coats of arms—are a delight. So is the fine brickwork of rich warm red, and the red tiling of the roofs.

"A visit to two or three not long ago showed them to be in surprisingly fine preservation inside—the good eighteenth century woodwork panelling, for the most part, nearly perfect. What will become of all this furnishing of the dignified but homely rooms? One of the larger houses recalls some old spacious inn, with its wide staircases, landings, and many doors and rooms.

"People of quality and well-to-do City men make up most of the unwritten history of this row, but it has its fame as containing a house in which Captain Cook lived, and another in which Macaulay went to school."

Of the New Tendency in organizations we had something to say last month. Significant among the activities of which news is constantly coming to hand is the following from the *New York Times:*

"About 200 engineers, draughtsmen, topographical men, and architects met last night in the Bronx Building, 177th Street and Third Avenue, to organize the Bronx Local 16388 of the Union of Technical Men. Of those present, 80 per cent were said to be in the employ of the city. It was said that the first class to be organized would be the draughtsmen, and that as soon as this was done they would ask for a $50 a week minimum wage.

"Walter V. McCoy, chairman of the Committee on the Extension of Organizations, presided. He declared that dignity was the bulwark that had stood between technical and professional men and their pay envelope. This dignity had in the past, he said, kept them away from association with men who labor. Now, he added, this was changed. Although Borough President Connelly of Queens had come out against the union of technical men, Mr. McCoy said they were 100 per cent organized in Queens.

"Mr. McCoy said that recently one morning newspaper had carried an advertisement for first-class draughtsmen at $28 a week and another advertisement for a window cleaner at $36. He said the following weekly wage scale would be the ultimate goal for the Technical Men's Union: Junior draughtsmen, $30 a week; draughtsmen, $50, and gradually up to designers at $100 a week. He said the technical men were doing only that which other labor bodies have done in this country, and that they would demand $30 a week of seven hours a day and half a day Saturday. In New York City alone, he declared, there are 2,500 men in the union."

From London comes the following, given out to the press by the Press Committee of the Clergy Association:

"For many obvious reasons the clergy could not form a trade union. For one thing, the clerical profession is not a trade, and for another, the clergy are precluded by the sacred nature of their calling from even contemplating the use of the strike weapon. However, the need of some organization among the clergy has been felt as keenly by others as by Dr. Lloyd Evans, and this feeling has resulted in the formation of the Clergy Association. The constitution is thoroughly democratic, and is so framed that any member of a deanery branch who is suffering from any hardship or injustice may make his case known speedily, and feel that, if his complaint is found to be justifiable, he will have the whole weight of the Association behind him in the demand for a remedy.

"The Association endeavours to secure to all clergy a stipend sufficient for all reasonable requirements of life, work, and responsibility, and does not hesitate to demand the attention of the bishops and leaders of the Church to avoidable hardships and anomalous inequalities, and to abuses of patronage. There is no diocese in which the success or failure of diocesan schemes does not depend largely on the support of the parochial clergy, and if the clergy only unite along the lines of the Clergy Association, there are ways in which they can exert very strong pressure by perfectly legitimate means. The Association is, of course, dealing with the important question of dilapidations to which Dr. Lloyd Evans refers.

"Two things are necessary—loyalty and keenness; and we have found plenty of both, waiting and eager for organisation."

Also, the English Institute of Journalists had its recent conference at Birmingham, where Mr. Frederick Hinde, its president, said, "The time has come when the Newspaper Society, the only body representative of the employers, should be invited to join the Institute and help in the formation of a council for journalists." Such an attitude is indicative of that larger conception of the coming functions of organizations, a conception hopelessly obscured in most present-day cases by the shadow of self-interest. The frantic haste in which vocations are organizing today is inspired almost wholly by a desire to protect a business interest, and yet it is the height of folly for any trade or vocation to believe that alone it can save itself. All industries, trades, and professions, must stand or fall together. Advantage taken by one trade or vocation of its power to dictate terms only leaves the whole fabric of industry floating without a rudder. The cost of benefits obtained in this way has to be borne by the other trades, industries, and professions to which any one trade, successful within its own autocracy, is tributary. Then there comes a consequent readjustment, a fresh attack all around, and a new unit of value has to be created.

The process is not new; it is old. Hitherto it has been on a comparatively small scale. Organized workers have represented a small minority of those who earn a wage or a salary. They have managed, in most cases, temporarily to better their condition. The cost of that betterment has been charged back upon the products to which their effort was tributary. The cost, thus distributed over a large consuming public, produced a slow but steady rise in the cost of all things consumed by the public. Under the influence of war, the rise was greatly stimulated, and is often assigned as the cause of the present condition. But it is not the cause. It is an acute attack of what was a chronic condition, and it ought to be plain to the simplest mind that if all forms of labor, whether hand or brain, now organize to secure higher wages and shorter hours, our present economic system must absorb the cost. That it can only do by increasing the cost of things to the consumer ever faster and faster, and it is in the midst of this vortex that we at present find ourselves.

Without a plan for relief, the situation is hopeless. Increased production would be the answer to a very great extent, provided that the profits from that increase could be so distributed as to confer a genuine betterment upon the producers. Such a distribution we have never been able to effect. Too large a proportion has gone to non-producers. The battle of the world today is to devise a new method of distributing the surplus profits of production. The struggle is too often obscured with senseless terminology, where the terms Bolshevism, socialism, anarchism, syndicalism, Marxism, are heaped upon all forward-looking suggestions. As it stands in the United States, we have, with some few exceptions, neither plans nor leaders. Both the employed and the employing classes are merely arming themselves for a conflict of which the outcome can only be nil. The problem will not down. "A dog-fight does not end when the under dog becomes the upper."

Is England today in the lead? In spite of her feverish industrial unrest, have her labor leaders a program which is aimed at the betterment of all society? No other program is worth a thought, and our hope is now that the President's industrial conference may produce such a program, and that it may be couched in language such as all can understand and be devoid of all masked schemes for preserving the *status quo ante*. I do not believe that we can ever go back to the old industrial order, and that the effort to do so, if persisted in, will push the western world over the edge of an abyss too horrible to contemplate.—C. H. W.

Possibilities in the Coöperative Organization of Architects' Offices and Draughting-Rooms

By ROBERT ATKINSON
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AMONG the contributory causes of that "architectural inefficiency" which is the subject of so much contemporaneous discussion, perhaps the greatest is the lack of business organization amongst architects themselves.

It is said that the architect loves to call himself an artist and to cultivate that irresponsibility so dear to the Bohemian, or to shelter himself behind the mask of professional tradition and to cover his defects by the thought that such things are unprofessional—a fly-away artist or soulless dummy, according to temperament, but never, or seldom, a person with a grasp of £. s. d. In other words, a person for whom the average client lives in constant trepidation under the fear of unforeseen expenses.

That these things are true of some architects is scarcely to be denied. How large a proportion they bear, in numbers, to the whole of the practising profession, I do not know, but after an experience at the hands of such a practitioner, one can, therefore, understand the tendency of manufacturing firms to dispense with the architect and to secure a fixed firm estimate for the work from a builder, including plans, or to employ only those few architects whose business ability approaches most closely to the required efficiency, with very little regard for the purely architectural aspect, as it is generally understood. Few architects can hope to compete against such large contracting establishments, with their efficient systems of costing and organization, and if the same thing is to become general in the architectural world, it will most surely be at the expense of the individuality of the designer and of the separate existence of the individual practitioner, a loss which, from the artistic point of view, will hardly bear thinking about. A business man controls, we will say, the general organization; he handles great cash accounts, smokes large cigars, entertains largely and advertises extensively; he employs two hundred people—designers, draughtsmen, costing clerks, surveyors, engineers, and clerical staff; he can give a fixed firm estimate for any job, turn out the drawings necessary in twenty-four hours, and, when necessary, undertake contracting work. Each section of his organization does only its quota of work; the designer passes on the sketches to a draughtsman, the draughtsman to the engineer, the engineer to the surveyor, and thus each individual is tied to his particular job, cannot become an all-round architect and cannot hope to establish business on his own account in face of such competition, or provide the cash necessary if he could overcome the other obstacles.

It is the business man who arranges the affair and the artist who provides the oil for the works. The difference between such a firm and the average large contracting firm is difficult to find; the one is called Building Ltd., and the other Architecture Ltd.; that appears to be all.

Limited liability companies* for architecture, or something of the sort, are within the bounds of possibility in the very near future, and to counteract such tendencies is surely the aim and hope of all true architects. It goes without saying that a more efficient education in practical and business affairs is an essential element in any reform, and I think some sort of public educational campaign on architectural matters, conceived in a large spirit and free from personal ideas, engineered from a central department for the good of the profession generally, would do a great work in dispelling from the public mind the idea that architecture is a case of the lowest estimate and in awaking public interest generally. Such a campaign would need to be worked through the popular journals and graded to awaken interest progressively. All this, however, leaves the problem of the small professional man with limited resources very much as in pre-war days, and, possibly, by his inability to rise with the times, in worse case than before. It is with the idea of finding a solution to this problem that the following ideas have been penned.

I see no reason why several persons should

*The English term for the American "stock company."

not group themselves together, as presently expounded, and by their combined resources properly organized, combat upon their own grounds the greater firms, at the same time preserving that invaluable architectural quality of "*individuality*," so that in the long future each building would be stamped by the character of its designer and its personality be as convincing as works by Bruneleschi or Perruzzi.

The fundamental idea is that as each architect in practice pays from his commission a certain percentage for office and establishment charges, which we will say amounts to one-third of his fees, it is obvious that a reduction of expenses and greater efficiency could be secured by several persons combining and pooling their office organizations; would it not then be of great advantage for a dozen young men, including if you like the greatest divergency of temperament and capabilities, to run in harness for their mutual advantage? The combination might include specialists in designing, town planning, decoration, construction, engineering, surveying, and business.

Each would look after his own clients and pay into the common fund the one-third of his fees which his individual office would cost; there would thus be no question about his not receiving a due share of profits. From this general fund all office expenses would be paid, rent, cost of materials and cost of drawing office. The drawing office costs would vary according to the size of the job, but as each would be in proportion to the funds paid in, it would equalize itself. The volume of work provided would enable the co-partners to employ an efficient general manager for office work; they would be able to keep fully occupied a consulting engineer and a quantity surveyor, with the added advantage of having always available for consultation in difficult cases their various expert co-partners.

Consultations of this sort would be paid for out of general funds, at agreed rates, and co-partners not fully occupied could lend themselves to the general office at salary rates.

Work in which it was necessary for any particular co-partner to coöperate with another would be shared as joint work, and work introduced directly through the executed work of any particular man would remain the property of that co-partner.

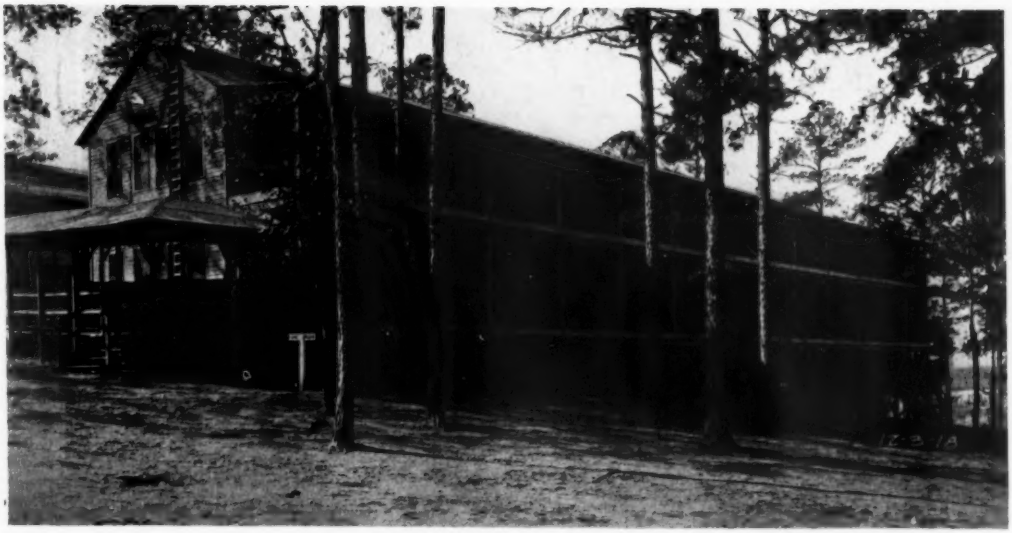
To ensure an adequate contribution to general funds, a minimum payment of £100 per annum might be levied which, representing as it does, on a 5 per cent basis, jobs costing £2,000, would be within the reach of almost any young architect and would not tend to exclude men just commencing practice. Regular meetings of co-partners to transact business would be held, and, finally, surplus funds would be divided between members in the ratio of their contributions.

It seems to me that some such sort of working agreement, preserving, as it does, to the full, the present independence of the architect, yet giving the advantages of a great organization in addition, and the chance for every clever man to secure an independent practice with the least possible expenditure and the greatest possible chances of success, would go a long way toward a solution of the problem of efficiency, by reason of the powerful organization possible after a certain amount of experience in running.

The architect has a tendency to over-emphasize the idealistic attributes of the profession; by so doing he gives the impression of being a dreamer rather than a doer, and so undermines public confidence. Whereas, what the profession needs is more certain or more stable conditions of employment, and, whilst under such a scheme the individual need not be less artistic or less irresponsible, the general organization at his back would counteract his deficiencies and quite possibly make a success of what would otherwise be a failure in business.

The collective experience gained would permit a much more rapid accumulation of business acumen than is possible by the slow process of a bare living practice, even if each of the joint practices taken separately was of the threadbare order.

To prevent absorption of the coöperative organization, or its exploitation by single members, it might probably be a good thing to provide that a maximum earning be fixed beyond which point a member would be required to resign and to establish an independent office.



WARD BARRACKS K-8

Army Hospitals in the United States

By RUSSELL H. KETTELL*

AT the time of the entrance of the United States into the war, in 1917, the army had approximately 10,000 beds in hospitals in this country. Of these, 5,100 were at army posts, 1,500 in general hospitals, and 3,400 along the Mexican border, in base hospitals, erected in decidedly temporary fashion to meet the emergency arising from the concentration of troops in that locality. In less than two years' time the standard bed capacity had grown to 112,000 beds, the medical personnel on duty here had jumped from 7,796 to 315,980 officers, nurses, and enlisted men, and over two million cases had been treated—a number sufficient to have populated the city of Chicago at the time of the last census in 1910.

A classification of the hospitals operated during the war, which will form the main divisions of this discussion, follows:

	Buildings	Beds
I. 48 post hospitals (minor additions)	365	6,056
II. 62 hospitals of new construction	3,597	88,460
III. 39 hospitals in leased buildings	659	29,383
†149 hospitals	4,621	123,899

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†The 43 hospitals, with a capacity of 4,576 beds, built by the Division of Military Aëronautics, are not included in the table or discussion in this article.

I

Post Hospitals

Of the three classes, the post hospitals presented by far the smallest problem. The addition of a ward or so, a barrack-building, and perhaps a new mess and kitchen generally met the increased demands at these hospitals, and as the plans from which these buildings were built were usually the standard plans used for the hospitals of new construction, they will not be discussed here.

II

Hospitals of New Construction

This second classification will be considered under three broad groupings, the *Early Camp Type*, the *Knox Type* and the *Bragg Type*.

In the plan of the Letterman General Hospital in California, we can see the precedent on which the early camp type of hospital was first laid out. Thirty-two of the National Guard and National Army cantonment hospitals were built during the summer of 1917, with certain minor variations, from which grew the original schematic block plan. The symmetrical arrangement, with the administration building at the

FIG. 1

head, the operating and laboratory buildings in the center of the hospital, the mess and kitchen on axis at the rear, wards extending in both directions from the central corridors, and the housing of the personnel in groups about the outside and within an inclosing roadway, are all fundamental reflections of the Letterman plan. Other hospitals designed in the fall and winter of 1917 followed this general plan until a rearrangement and grouping of services produced such block plans as the one illustrated in the base hospital, Camp Abraham Eustis, Virginia.

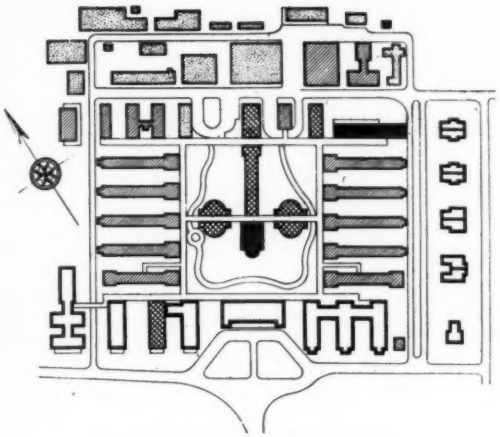
All the plans thus far mentioned are of the early camp type; but few were over 1,500 beds in capacity. A situation arose, however, in the summer of 1918, that called for radical measures when camp hospitals of 2,500 to 4,000 beds were to be built as a result of the plans of the general staff to have 3,360,000 men trained and in France by the following June 30. The factors forcing the situation were as follows: The new hospitals were to be three and four times as large as any hitherto designed; the inevitable shortage of materials and labor had arrived; and medical officers, nurses, and enlisted men in the medical department were becoming exceedingly scarce. It was evident that any hospital constructed along the lines of the prevailing type of cantonment hospital would cover an enormous amount of ground, that it would consume more materials and require more labor than were at the time available, and that the administration of such an octopus of small units could not be effected by the limited allowance of personnel that could be recruited. It was, then, a case of military necessity that the head house, or Knox type of hospital, with its high ratio of 100-bed wing wards, with the limit length of 230 feet, was developed, and in a number of instances built before the signing of the armistice brought the construction program to an end. The plan shown of Camp Mills on Long Island, New York, is of this type. The various advantages of the new layout over the old are at once suggested by a comparison of the plan of Camp Abraham Eustis with that of Camp Mills, bearing in mind the fact that the two plans are drawn at the same scale and that the former is a 750-bed hospital while the latter is one of 2,000 beds.

For a smaller hospital—one say of from 300 to 1,000 beds—still another, the Bragg type, was designed. It is a pavilion-type hospital, with most of the buildings two stories high and connected by two-story corridors. Like the Knox type the outside walls are made of metal lath and stucco on wood frame with an inside lining of plaster board. It is more flexible than the Knox type, which presupposes unusually level topography like that at Camp Mills.

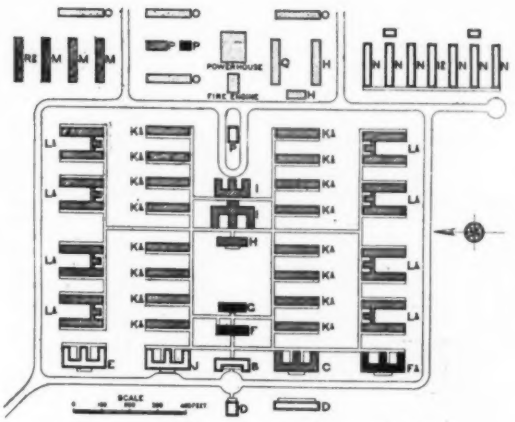
A discussion of the various hospital buildings, which must be limited to the most interesting, will be based upon the classification of Military Hospital Units shown in Fig. 1.

Under the elements of General Care and Treatment are the wards and the auxiliary rooms serving in conjunction with them for the care and treatment of the ward patients. Three classes of cases were provided for: General cases, isolation cases, and psychiatric cases. Provision was also made for officer patients and sick prisoners.

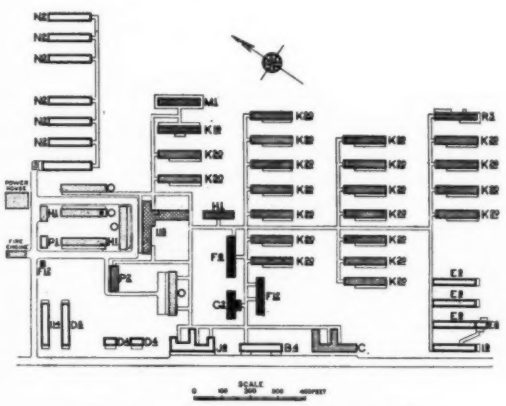
Forty-one thousand beds were constructed of the (K-1) type of ward and its double type (L-1), which was built only at the early hospitals. Each building housed 34 beds with 80 square feet and 900 cubic feet to each bed. The ratio of window-area to floor-area was 1 to 12. For the convalescent and slightly sick patient, of whom there were found always to be a great number in a camp hospital, the two-story ward



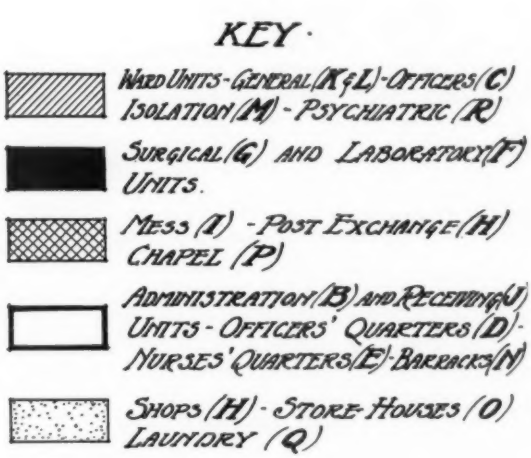
Letterman General Hospital (A)
Capacity 450 beds

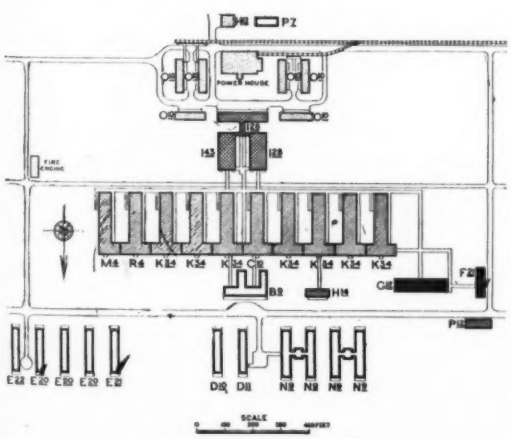


Early Camp Hospitals (B) (schematic plan)
Capacity 1,000 beds

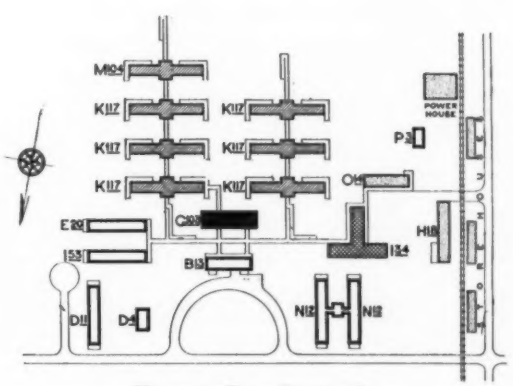


Hospital, Camp Abraham Eustis (C)
Capacity 750 beds


KEY
Ward Units - General (K & L) - Officers (C)
Isolation (M) - Psychiatric (R)
Surgical (G) and Laboratory (F)
Units.
Mess (A) - Post Exchange (H)
Chapel (P)
Administration (B) and Receiving (J)
Units - Officers' Quarters (D) -
Nurses' Quarters (E) - Barracks (N)
Shops (H) - Store-Houses (O)
Laundry (Q)

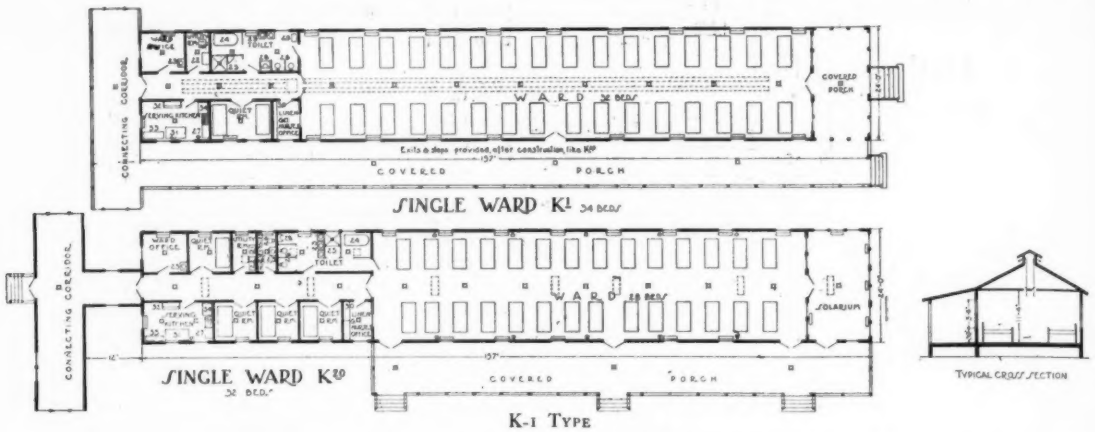


Hospital, Camp Mills (D)
Capacity 2,000 beds



Hospital, Camp Bragg (E)
Capacity 450 beds

Block Plans Showing Progressive Development in the Grouping of Hospital Buildings. The Stages of Transition Are Indicated by the Letters A, B, C, D, E



K-1 Type

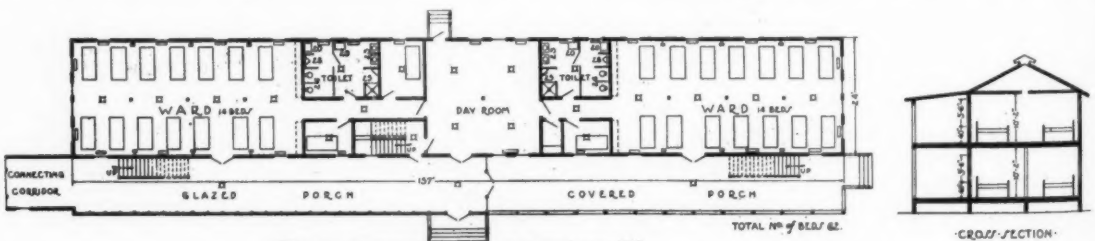
barrack (K-8) type was designed and built to an extent of 27,000 beds. Sixty men were housed on two floors of each building, with a lounge at the center of each floor. The various special services that were included in (K-1) and in wards of its type were omitted in this design as being unnecessary to the class of patient that was to use the building.

The isolation ward (M) contains the same facilities as the general ward, but is especially arranged to control infection, and includes facilities for sterilizing and disinfecting. The psychiatric ward (R-2) contains the same facilities as the general ward, but is especially arranged for a more secure control and includes facilities for minor hydrotherapy.

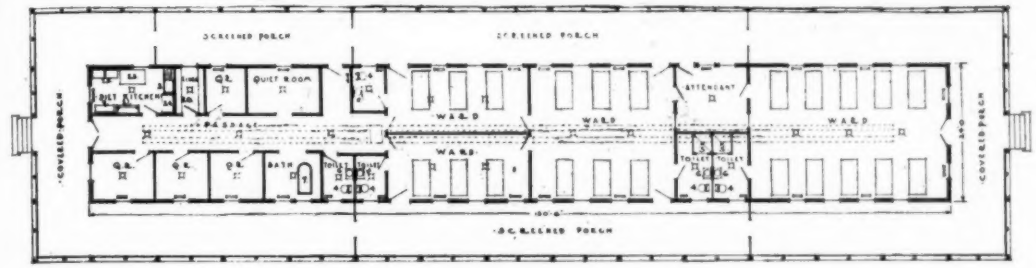
The general ward of the Knox type hospital is (K-34) subdivided, when so directed, into the modified form (K-56). The striking feature of (K-34) is the 100-bed ward—a radical innovation. For troops from overseas, among whom the percentage of ambulant cases was very high, and where we were dealing with men who by that time were fairly immune from the general run of contagious diseases, this large ward offered many advantages. For the green troops constantly assembling at the cantonments, usually 100 sick men are too many to group together in one room without installing a system of cubicals, and some such modified plan as (K-56) is preferable. The two-story open corridor along the ends of the ward should be noted. This passageway is intended to take the traffic of patients going to and from mess, and as much service traffic as possible, out of the head-house corridor in all but very inclement weather. The long porch on the west side of each ward gives a protected open-air lounge, easily reached from all parts of the ward and under direct control of the ward attendants.

The ward building (K-58), a part of the Bragg type hospital, is planned to give the best possible care to troops of any kind—seasoned or unseasoned. A two-story connecting passageway divides the floor unit into two sixteen-bed wards and four quiet rooms, all served from a central diet kitchen and under the control of a single office and treatment-room.

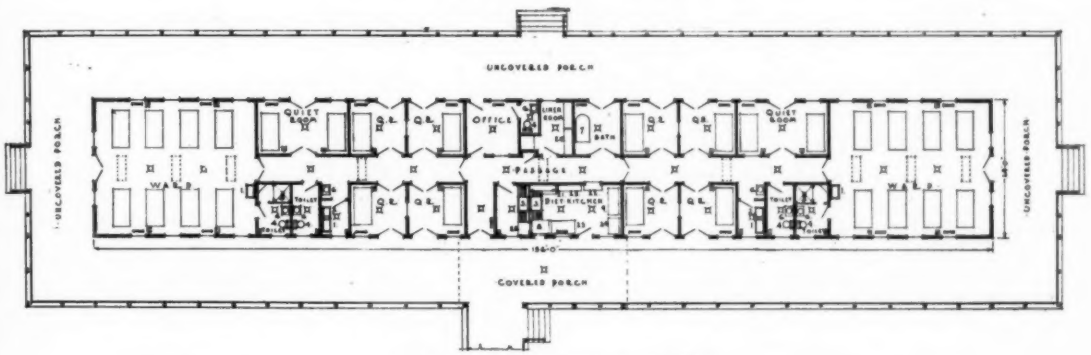
Isolation and psychiatric wards of both the Knox and Bragg type are but modifications



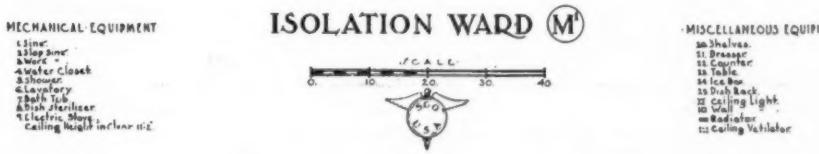
TWO-STORY-WARD-BARRACK K8
FIRST STORY - 2ND STORY SIMILAR



ISOLATION WARD (M)



ISOLATION WARD (M')

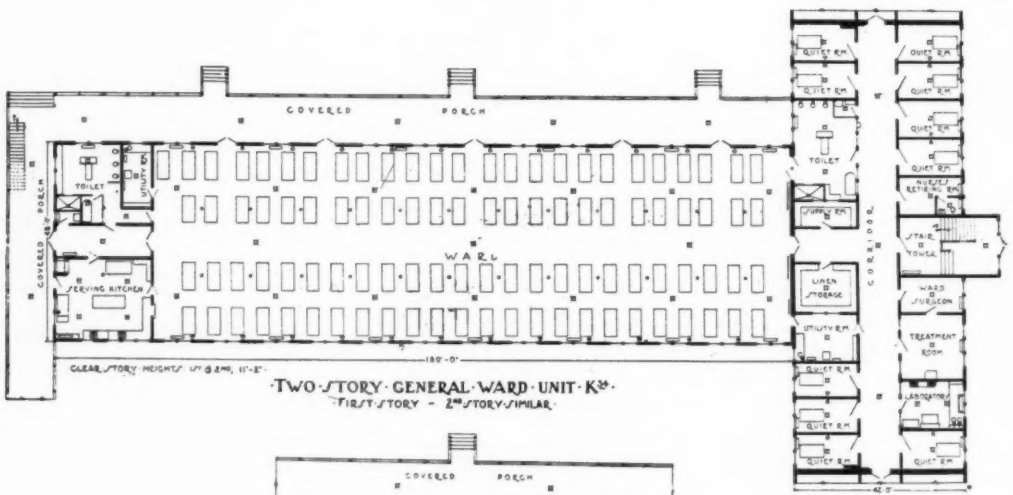


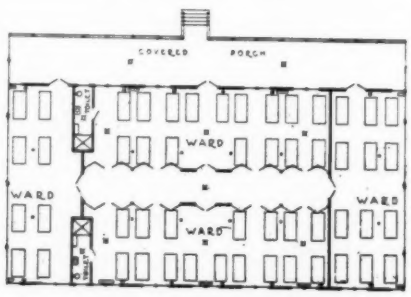
from the earlier designs, to conform with the modified form of their respective general wards.

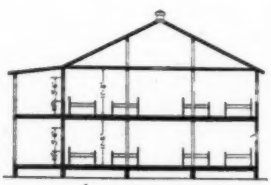
Four distinct services are classified under *Special Care and Treatment:* Surgical, laboratory, social, and mess. In the case of both the surgical and the laboratory plans there are no definite changes that should be illustrated and described, but rather a steady process of improvement. From the early surgical building (G) and laboratory building (F) to the latest and most complete buildings of (G-12) and (F-21) there has been considerable advance that may best be appreciated from a comparison of plans. The social buildings, consisting of the chapel, hospital exchange, and amusement buildings such as those built by the American Red Cross so generously throughout the list of army hospitals, serve important functions in a hospital, but present no very difficult planning problem. With the kitchen and mess, however, it is quite different.

The patients mess buildings were seen to be so influential in effecting the contentment of the patients and personnel and in offering such a wide range of possibilities between waste and economy in operation that from the outset their development was given a very special attention. The early mess (1) was designed for feeding ambulant patients (figured at about 60 per cent of the total patients), by the system then in vogue in army hospitals and called the "set-up service," i. e., dishes and food were placed on the tables in preparation for the arrival of the patients; the patients arrived at a given hour, ate, and left the mess hall; dishes and scraps were then cleared from the tables by attendants and things cleaned up for the next meal, or for the next sitting of the same meal, if, as was more often than not the case, there were more ambulant patients than seats in the mess hall. This system, at best, was difficult and unsatisfactory. With the enlarged hospitals it became well-

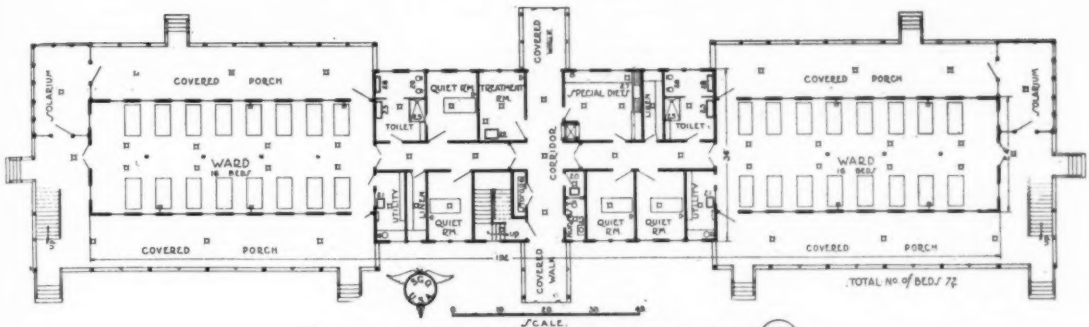
COVERED PORCH
DISTURBED PATIENTS SECTION
DAY ROOM
WARD
TOILET
OFFICE
COVERED PORCH
PSYCHIATRIC · WARD · R2
COVERED PORCH
BATH ROOM
DAY ROOM
DISTURBED PATIENTS
WARD
DISTURBED PATIENTS
WARD
NON-DISTURBED PATIENTS
DAY ROOM
SEMI-DISTURBED PATIENTS
WARD
CONVALESCENT PATIENTS
SPECIAL DIETS
LINEN ROOM
CORRIDOR
CONVALESCENT PATIENTS
QUIET RM.
TOILET
SUPPLY RM.
NURSES' SETTING RM.
LINEN STORAGE
WARD SURGEON
UTILITY RM.
TREATMENT ROOM
LABORATORY
MECHANICAL EQUIPMENT
MISCELLANEOUS EQUIPMENT
SCALE
PSYCHIATRIC · WARD · R4
FIRST STORY - 2ND STORY SIMILAR


COVERED PORCH
TOILET
SERVING KITCHEN
WARD
CORRIDOR
QUIET RM.
NURSES' SETTING RM.
SUPPLY RM.
STAIR TOWER
LINEN STORAGE
WARD SURGEON
UTILITY RM.
TREATMENT ROOM
LABORATORY
CLEAR STORY HEIGHTS 1ST & 2ND, 11'-2"
TWO STORY GENERAL WARD UNIT K34
FIRST STORY - 2ND STORY SIMILAR


COVERED PORCH
WARD
WARD
WARD
WARD
K34 SUBDIVISION OF K36 INTO FOUR WARDS


TYPICAL CROSS SECTION

K 34 AND K-56



·TWO·STORY·GENERAL·WARD·UNIT·(K)·

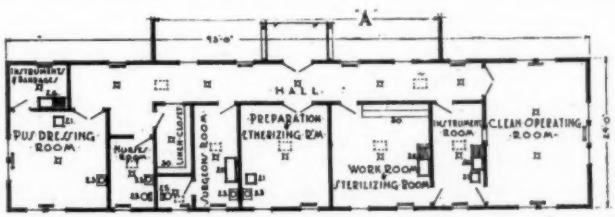
FIRST STORY–2ND STORY SIMILAR

nigh impossible. The answer to the problem was found in the cafeteria which will be described later. Bed patients (figured at 40 per cent of the total patients), were cooked for in the main and in the diet kitchen under the supervision of the dietitian. Food was then placed in the food-carts and trundled to the several ward diet kitchens whence it was served under the direction of the ward nurse.

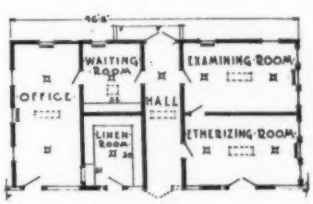
To show the latest and most complete kitchen and mess design, typical of the Knox type hospital and merely too large for the Bragg type, preparation building, kitchen, and mess halls (O-12), (I-39), and (I-43), respectively, are illustrated. These buildings are of metal lath and plaster on wood frames lined with plaster board with the joints plaster-filled. Light and ventilation are provided to a maximum. The traffic of mess attendants and food-carts is kept away from the cooking-area, and the three distinct elements of vegetable and meat preparation, cooking, and messing are separate from one another, resulting, under proper supervision, in an immaculate kitchen and mess.

In each of the two mess-hall wings are two cafeteria units, each capable of serving 1,000 men per hour. As far as is practicable they may be used in cafeteria, the more economical service, but for that class of patient who, for example, hobbles his way to mess on crutches, all or a part of any unit may be set aside and the meal served by attendants to the men at table.

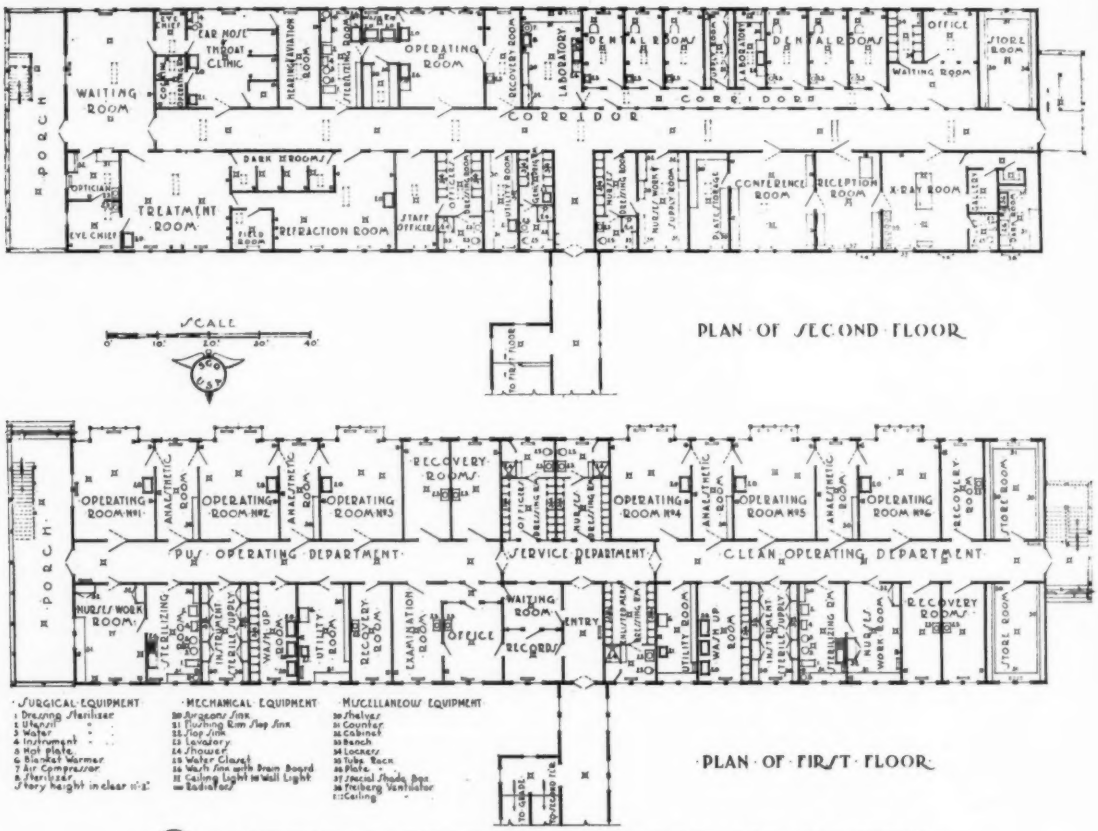
In operation and detailed arrangement of the cafeteria there was chance for considerable variation, according to the different needs of the hospital and the ideas of the mess officer. Very broadly speaking, however, the following was true. At the head of the counter the patient picked up his tray and his knife, fork, and spoon. Then he came to the various foods of his meal, arranged as nearly as possible in the order in which he would choose to eat them, i. e., starting with bread, butter, and soup and ending with dessert. The chief rules that at times worked at cross purposes with this sequence were, first, that the hot foods, with the exception of coffee, had to be served from the steam table, and, second, that the dishes, such as coffee, likely to spill and slop, should come toward the end of the counter where their journey would be as short as possible. With his tray well stocked, the patient walked to a seat in the mess hall to eat. If he wanted a drink of water he could get one at a sanitary drinking-fountain, two of which were customarily pro-



(G)·SURGICAL·PAVILION·



·ADDITION·TO·G·
LOCATED·AT·'A'



G12 SURGICAL BUILDING FOR 2000 BED HOSPITAL

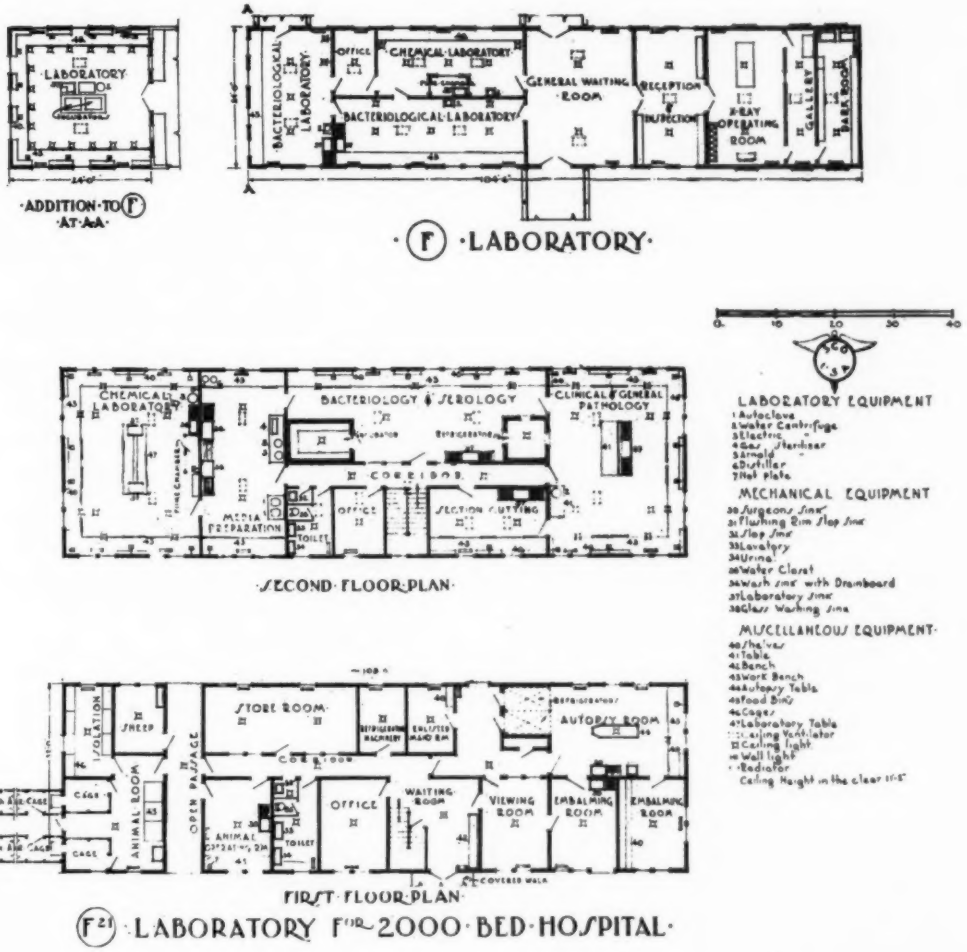
vided to each cafeteria unit at uncongested points along the aisles.

In the layout of a cafeteria mess hall three closely related factors had to be considered: the rate of serving, the length of time a patient could be persuaded to devote to eating his meal, and the number of seats. It was found that a rate of serving of twenty patients per minute was entirely practicable; that a man would seldom stay more than ten, never more than fifteen minutes at mess, and, as a computation from these two, that from 300 to 325 seats were sufficient to keep a single unit in smooth, continuous operation.

His meal over, tray and dishes in hand, the patient was expected to file by the dish-washing room window to return the utensils. At the window there was frequently a box into which he tossed his knife, fork, and spoon. Then he passed the tray and its contents into the washing-room, where they were washed and returned to the counter to be used again.

To maintain the rate intended, each specific process must be able to keep up to that speed, for, like the proverbial fortress, the system is no stronger than its weakest point. While the dish-washing room may seem quite remote in operation from the cafeteria counter, it is, nevertheless, rigidly a part of the system. If the dishes cannot be taken in, washed, and disposed of as fast as they are brought to the window,—and this will be at the rate of serving,—the whole system will have to be slowed down or in continuous operation it will jam.

The final classification of the housing elements into which this discussion is divided is called the Operation of Hospital. All administration, plant operation, supply service, and buildings for the care of personnel are here included. A list of them would contain under administra-



tion, the receiving ward as well as the several offices necessary to the running of the hospital; under plant operation, such a variety of buildings as the power-house, the electric service station, and the filter-beds; under supply service, the storerooms for quartermaster, commissary, and medical supply; and under care of personnel, the various sleeping, eating, and recreational accommodations for medical officers, nurses, and the detachment.

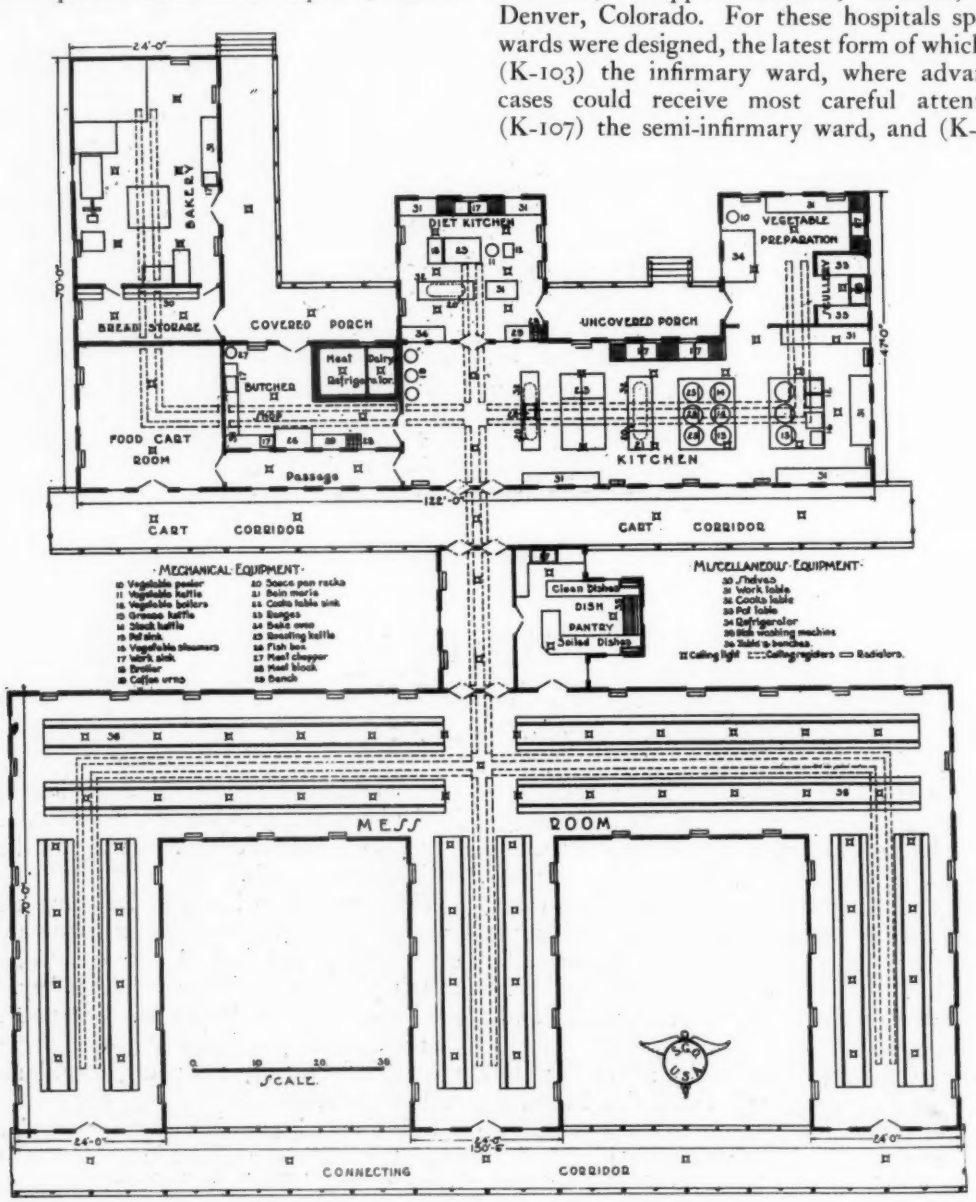
Most of the buildings in the above list are single buildings, isolated from the hospital proper and thus hardly reflecting the changes that brought about the various types which have been pointed out in connection especially with the wards. There was, however, some change in the administration building, considerable change in the receiving building, while in the barracks and quarters, three flexible unit systems were worked out for caring for the three different personnels.

There were two kinds of buildings that we may call special because they were not a part of every army hospital, being constructed at certain places according to definite policy. These are reconstruction buildings,—curative shops, schools, and physiotherapy buildings; and tuberculosis wards, infirmary, semi-infirmary, and open-air.

Schools and curative shops were built in groups, usually one school in a line with two or three shops. The later designs, because of the fire-risk in the nature of their uses, were of hollow tile, plastered on the inside and exposed

on the outside; the windows were closely spaced and an extra sash in height; interior partitioning was left to be located on the job to accord with the particular apparatus that should be furnished in each instance.

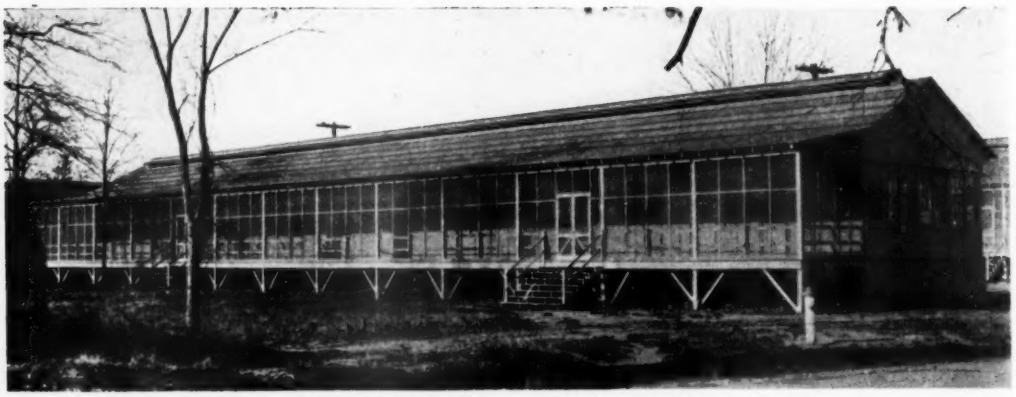
The program of the tuberculosis specialists called for special tuberculosis hospitals, located in carefully selected climates, and reserved exclusively for that kind of patient. Nine such hospitals were established, at Ft. Bayard, New Mexico; Otisville, New York; New Haven, Connecticut; Markleton, Pennsylvania; Spartanburg, South Carolina; Waynesville, North Carolina; Whipple Barracks, Arizona; and Denver, Colorado. For these hospitals special wards were designed, the latest form of which are (K-103) the infirmary ward, where advanced cases could receive most careful attention, (K-107) the semi-infirmary ward, and (K-108)



-MESS & KITCHEN - ①-

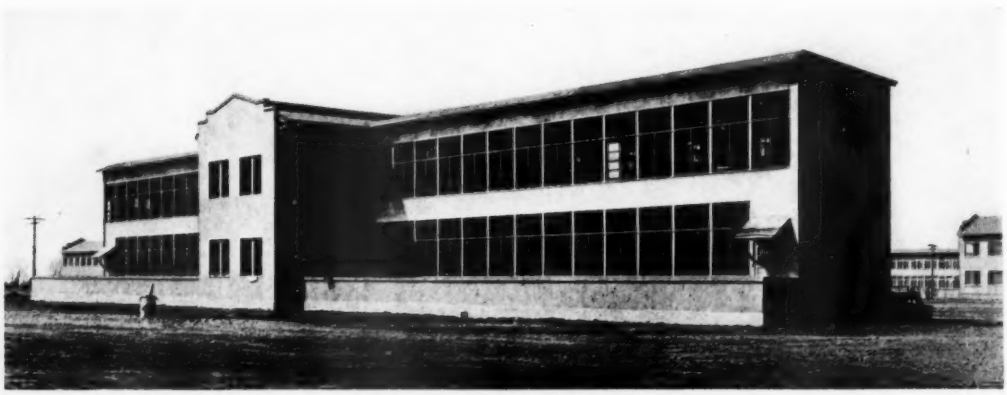
Large Ward (167 Beds) Debarkation Hospital No. 3

Mess Hall, Debarkation Hospital No. 3

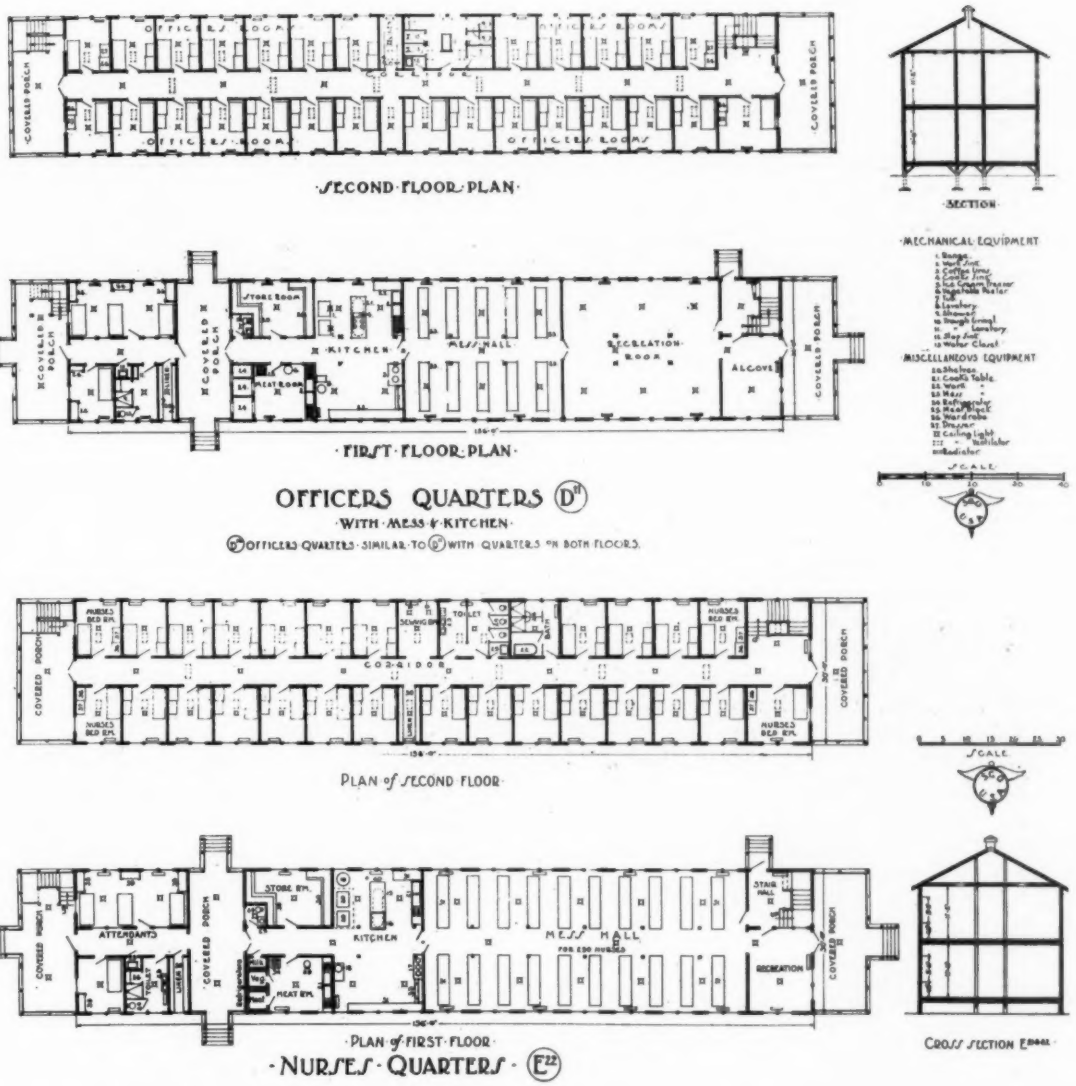


General Ward Pavilion K-1, Early Camps

General Ward Pavilion K-58



Tuberculosis Open-Air Ward K-108



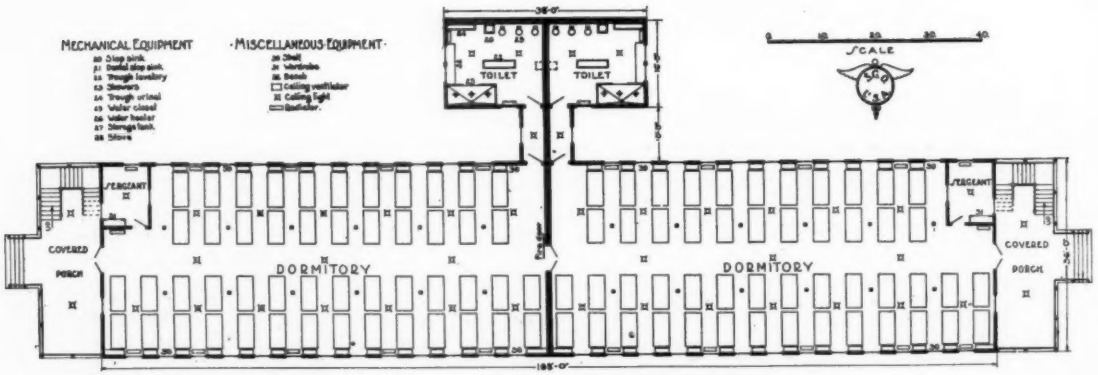
the open-air ward for slight cases that usually need little more than rest, good food, and an out-of-door life.

III

Hospitals in Converted Army Posts and in Leased Buildings

In the third large classification the problem was largely one of alteration, with, in some instances, at converted posts, the addition of a few new buildings of the current design.

By the spring of 1918, all available army posts had been transferred and converted to the uses of the Surgeon General, and as the program of hospitalization grew by leaps and bounds, building material grew scarcer and scarcer, and the railroads, especially in the East, seriously congested, it became evident that a large, probably the major share of the program, would have to be carried out in converted leased buildings. It meant designing at the job, and the office was at once organized to meet the situation by assigning certain men to this pillar-to-post duty, following up a special com-



MEDICAL DEPARTMENT DETACHMENT BARRACK N° 12
FIRST STORY SECOND STORY SIMILAR

mission which was sent through the country scouting for institutions, factories, and loft buildings that could best be modeled into hospitals without seriously disturbing the life of the community.

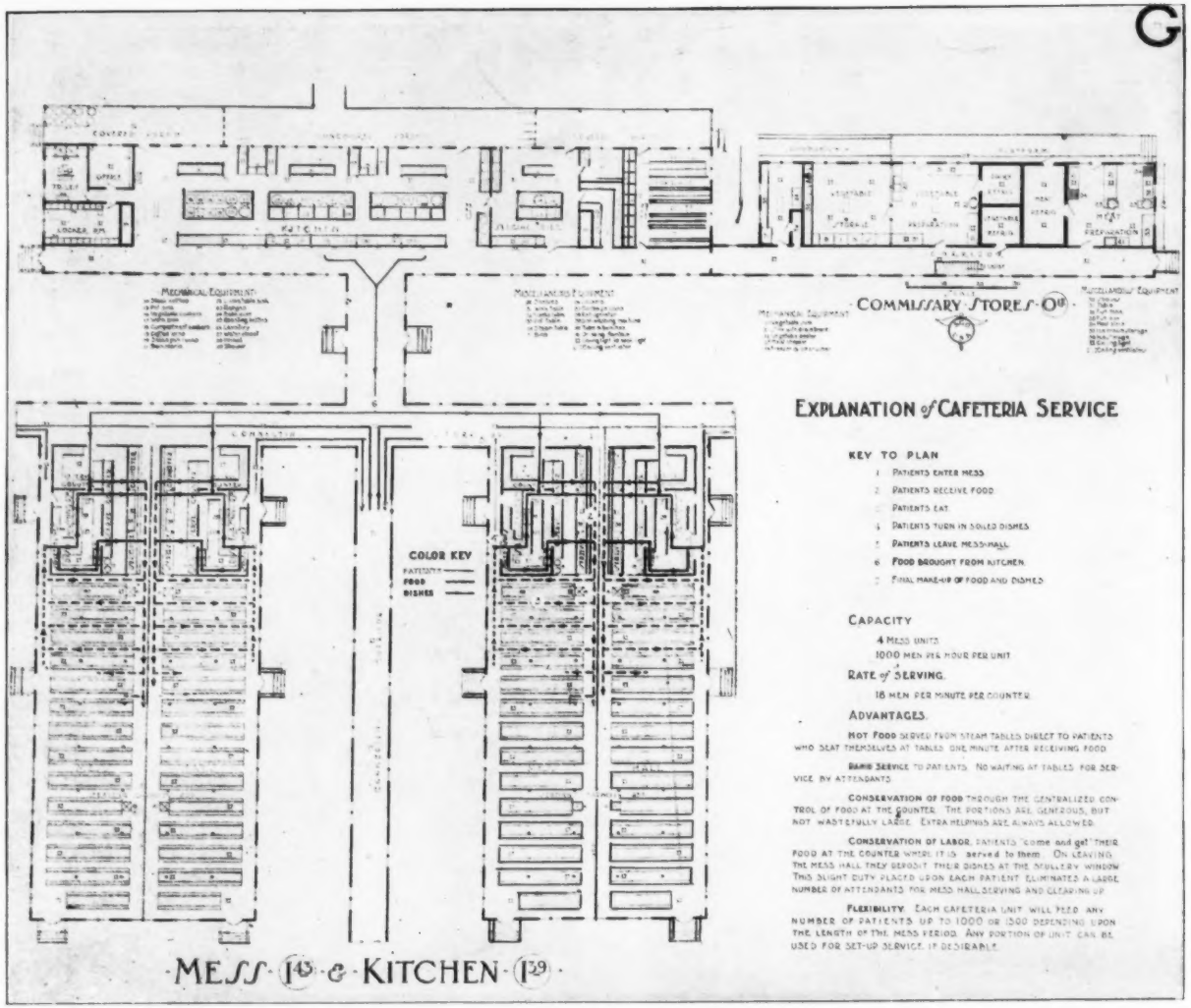
The development that had been going on among the plans for hospitals of new construction continued in those hospitals established in altered buildings, especially in regard to the detailed arrangement and equipment of the various rooms. As an example, and probably the best known of these leased buildings, we will consider the old Greenhut Store at Sixth Avenue and 18th Street in New York City, which was converted into a clearing hospital, with a capacity of 3,500 beds, for patients brought into the port of New York from overseas. There were six floors, a basement, and a roof-garden, tied together by twenty-eight elevators, remodeled and equipped to provide for every hospital requirement from the steam disinfector in the basement, to the runways for rabbits, guinea pigs, and white mice on the roof. The outstanding features of the hospital were probably the receiving section, the large wards, and the system for mess.

The receiving section of this hospital served two purposes: It afforded an opportunity to examine the arrivals for contagion, vermin, and, in a general way, for any need for immediate medical and surgical attention. And it provided for recording and bathing the patients before

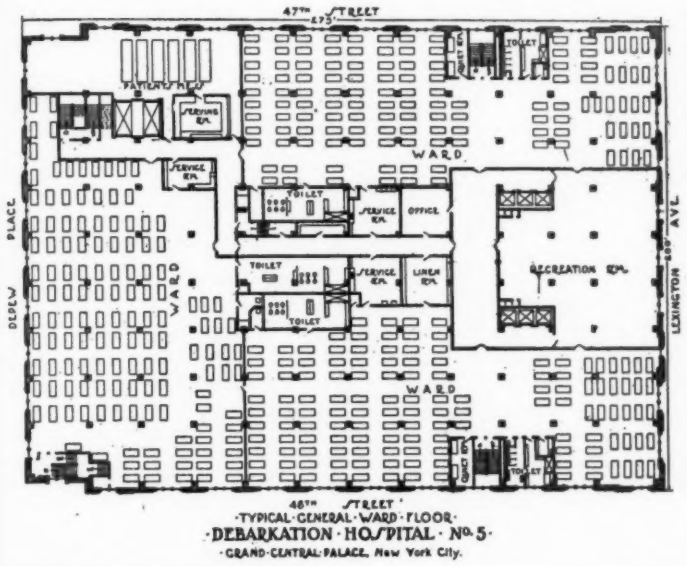
TYPICAL GENERAL WARD FLOOR
DEBARKATION HOSPITAL N°3
GREENHUT BUILDING, New York City

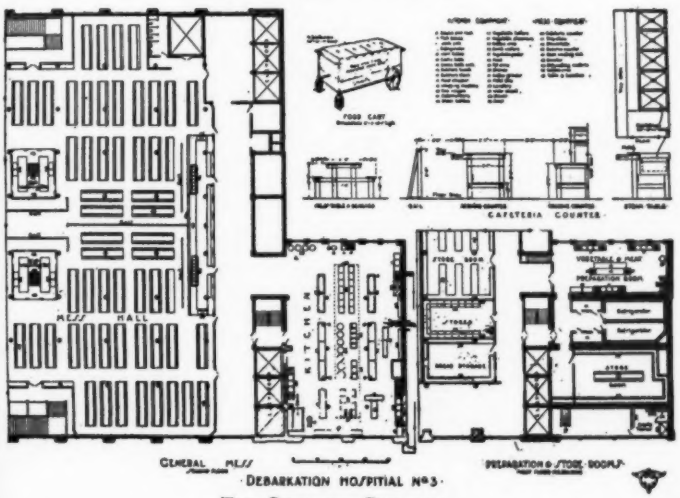
Typical School Building and Curative Shop

Interior of General Ward Pavilion K-1


G
COMMISSARY STORES O12
COLOR KEY
PATIENTS
FOOD
DISHES
MESS I43 & KITCHEN I39
EXPLANATION of CAFETERIA SERVICE
KEY TO PLAN
1 PATIENTS ENTER MESS
2 PATIENTS RECEIVE FOOD
3 PATIENTS EAT
4 PATIENTS TURN IN SOILED DISHES
5 PATIENTS LEAVE MESS-HALL
6 FOOD BROUGHT FROM KITCHEN
7 FINAL MAKE-UP OF FOOD AND DISHES
CAPACITY
4 MESS UNITS
1000 MEN PER HOUR PER UNIT
RATE of SERVING.
18 MEN PER MINUTE PER COUNTER
ADVANTAGES.
HOT FOOD SERVED FROM STEAM TABLES DIRECT TO PATIENTS WHO SEAT THEMSELVES AT TABLES ONE MINUTE AFTER RECEIVING FOOD
RAPID SERVICE TO PATIENTS. NO WAITING AT TABLES FOR SERVICE BY ATTENDANTS
CONSERVATION OF FOOD THROUGH THE CENTRALIZED CONTROL OF FOOD AT THE COUNTER. THE PORTIONS ARE GENEROUS, BUT NOT WASTEFULLY LARGE. EXTRA HELPINGS ARE ALWAYS ALLOWED.
CONSERVATION OF LABOR. PATIENTS "come and get" THEIR FOOD AT THE COUNTER WHERE IT IS served to them. ON LEAVING THE MESS HALL THEY DEPOSIT THEIR DISHES AT THE SOILED WINDOW. THIS LIGHT DUTY PLACED UPON EACH PATIENT ELIMINATES A LARGE NUMBER OF ATTENDANTS FOR MESS HALL SERVING AND CLEARING UP.
FLEXIBILITY. EACH CAFETERIA UNIT WILL FEED ANY NUMBER OF PATIENTS UP TO 1000 OR 1500 DEPENDING UPON THE LENGTH OF THE MESS PERIOD. ANY PORTION OF UNIT CAN BE USED FOR SET-UP SERVICE, IF DESIRABLE.

KITCHEN AND MESS PLANS, O-12, I-39, I-43





THE GREENHUT BUILDING

A Contrasted Study of the Greenhut Building and the Grand Central Palace

they were admitted to the wards. In the case of stretcher patients, however, which usually ran in low percentages, the men were held up on the first floor just long enough to take the necessary records, the rest of the process of arrival being carried on in the wards where more individual attention was possible.

The arriving line of ambulant patients moved usually at a rate of 250 men per hour, passing from one room to the next in a continuous stream. First, the records were made and any valuables the men had about them taken up and checked to their credit. Then they took off their clothes and were examined. Those suspected of a communicable disease were weeded out at this point, those found to have picked up cooties on the voyage home were sent through a special delousing section, and the remainder passed into a room with a large counter over which they delivered the bundle of their clothes to be cleaned, in return for a receipt somewhat similar to a laundry-list. Next was a shower section, and after that a dressing-room where the men put on blue-gray convalescent suits over pajamas, socks, and slippers. Before entering the elevator that was to take them up to the ward floors, the patients had cultures taken of their throats and their teeth examined, and upon stepping out of the elevator they were met by an officer detailed to provide them with back pay upon no further evidence than their statement that it was due.

Certainly putting 160 patients together in one hospital ward was a novel idea, and just as certainly it was done in the Greenhut Hospital, only after careful consideration. There were three obvious doubts about the large ward: Would it be excessively confused and noisy?—was it taking too great a risk from the point of view of control of contagion?—and would it be so large as to be unmanageable from a purely administrative standpoint? And there were equally obvious advantages: The light and circulation of air would be vastly better if partitioning was reduced to a bare minimum; there would be a large economy in the concentration into a few large centers of the various toilets, utility rooms, diet kitchens, and so on, necessary in connection with every ward; and, lastly, as there were to be large movements of patients through this particular hospital, it seemed, from the point of view of the Receiving and Forwarding Officer, that the further this

wholesale idea could be carried out the better. Due thought having been given to all these considerations, the large ward was decided upon and the building laid out accordingly. No bridges were burned behind, however, and if 160 patients in one ward should prove to be too many, the plans were so designed that intermediate partitioning could be put in at any time without interfering with the operation. It is a matter of record that the wards were not too large, and that for the particular problem for which they were intended, they fitted into the scheme of things admirably.

The Greenhut mess and kitchen layout was designed as follows: Bulk stores were kept in the dark unusable spaces of the basement. Immediate supply storerooms for meat, vegetables, bread, and groceries were located on the mezzanine of the first floor, reached directly by freight elevators from the service court. Vegetables and meats were prepared on this mezzanine and taken in bulk by elevator, dumb-waiter, and stairway to the main cooking-room on the second floor just above. This room was excellently lighted and ventilated. It was in direct connection with the main mess hall of some 2,000 seats, comprising two cafeteria units, each capable of feeding over 1,000 men per hour, set-up sections for tuberculosis patients and cases such as amputations, for whom a cafeteria would not be practicable, and in one corner a nurses' cafeteria. On the opposite side of the kitchen, and actually in an adjoining building, the medical department detachment, some 1,600 men, were fed at still another cafeteria operated in the same system. It will be noticed that all the mess halls of the hospital were concentrated on the one floor. It was thought that a considerable economy in operation and administration would result in having everything under so centralized a control and so near the kitchen. That it was possible to do this was chiefly due to the fact that there were as many as thirty-three elevators in the two stores, Greenhut and Cluett, which comprised Debarkation Hospital No. 3.

Ward meal service was maintained by food-carts stocked in the kitchen, transported by elevator to the several floors, and there wheeled directly to the bedside of the patient and served to him under the direction of the ward nurse.

In conclusion attention may well be called to the peculiar nature of the problem of hospital design. Up to a certain point it is one of fairly definite right and wrong, but beyond that point there is chance for a wide difference among the best of opinion. The cream of the medical profession of the country was listed among the officers of the Medical Department, and with the heads of the various departments of surgery, psychology, tuberculosis, laboratories, X-ray, administration, and so on, the designers, architects commissioned in the Surgeon General's office, were in constant communication for settling questions of medical technique and getting approval of the plans by those having jurisdiction. And there was another liaison important in the making of the best possible hospitals. This was with the Construction Division, responsible for the actual execution of the work. They possessed accurate knowledge of labor and materials conditions, and meeting the requirements and limitations that they, from their point of view, saw necessary to impose, was a definite part of the routine of the office.

At the outset the emphasis perhaps lay most strongly on having hospital facilities at the thirty-two cantonments by the time of the arrival of troops for training. This was done. As the many organizations which had been drawn together under such pressure in the early days of the war settled down into smoother and smoother running, and the liaison between them became more effectively established, and as the original cantonment hospitals were critically observed in operation, it was possible to institute improvements, and the plans were constantly under change. The result was the development of the block plans, individual buildings, and detailed arrangements that have been pointed out in this article. As the writer looks back over the construction period, he finds it interesting to note how the broad policies and general theories of design, both in large and minute application, were directed by idealism, as one would take an observation at sea, but how the day by day, hour by hour steering could be nothing but a battle among the facts as they existed to hinder or to help—realism of the most practical kind.

Post-War Committee—Some Opinions

WE publish herewith some opinions from Paul Waterhouse, F. S. A., an eminent English architect;* Edmond J. Hill, president of the Institute of Builders, England; the San Francisco Society of Architects, Henry Lord Gay, a member of the Institute, and Mr. W. A. Starrett, whose connection with war construction service at Washington during the war is well known to readers of the Journal. His comment on the services rendered by architects during the war are straight to the point, while his analysis of the various questions with which he deals is at no time lacking in either courage or conviction.

Other architectural organizations now coöperating with the Post-War Committee are the Royal Institute of Architects, Canada; the Society of Architects, London; the Central Society of Architects, Paris; the New Zealand Society of Architects, and the Swiss Society of Engineers and Architects. Others are preparing to take action upon the reconvening of their members after the interruption of war.

Ethics

A code of ethics, if required, should be brief. It will not produce good architecture, correct bad manners, or make an honest man out of one who is inclined to be otherwise. His membership, if prejudicial to the Institute, should be cancelled.—San Francisco Society of Architects.

Standardization

How shall we help to standardize details of building products in common use? Why do it, when it will tend to restrict progress through discouraging continuous thought for invention?—San Francisco Society of Architects.

Entering Practice

The new practitioner should properly begin with small things and work up to the field of greater responsibility, thereby qualifying through process of gradual development. High standard in quality of design and scientific results are the chief requisites.—San Francisco Society of Architects.

The Architect and Government

No matter how popular as an architectural citizen one may become, keep out of politics; don't try for or have thrust on you the office of alderman or supervisor, or any political office; in the end you will make a poor one and probably spoil a good architect.

Accept appointment on public committees wherein your constructive knowledge, or scientific experience, or artistic abilities fit you to serve, with value to your community and credit to yourself.

Consider, first, that ably to fulfil all the functions and varied demands allotted to the active performance of a skilful and talented architect, there is no political office that can give scope to his abilities nor equal his value in service to the public as can an architect.

There are no "governmental or civic organizations dealing with matters lying well within the domain of architecture" that are not well within the control of political preferment and will remain so, in the writer's belief, until such influences are directed by public dictation, and it is up to the architectural profession to see how far its propaganda can effect a change of political bias and potency.—Henry Lord Gay.

Architects in the War

One ghost that ought to be laid at the very outset is the one to the effect that the architectural profession had been found wanting in the stress of the war emergency. Nothing could be further from the truth. Not only was it not found wanting, but it is probably fairer to say that it contributed more of intensively trained individuals—trained and fully equipped with a specific, immediately applicable knowledge—than any other of the professions, excepting only the medical profession. Without attempting to prove the point by statistics, it can be pointed out that nearly the whole constructive effort of the war demanded illustration by means of drawings, and while the mechanical and other technical men were pressed in goodly numbers, yet everywhere throughout the government architects and architectural draughtsmen were to be found, and their natural resourcefulness, born of the diversity of their training, was everywhere in demand, and, on an exceedingly large scale, put to use.

That the great architectural firms of the country did not take a more active part, as firms, is a matter that history is sure to record as a shortcoming of the Government and not of the profession, for I still maintain that had the Government availed itself of the organized teamwork ability of the architectural concerns of the country, millions of dollars and, no doubt in many cases, weeks of priceless time would have been saved.—W. A. Starrett.

Education

It is advisable to license architects, as a higher standard is assured thereby. The law should be designed to improve the status of architecture and not the status of the architect. It has seemingly been of benefit in the state of California. Good architecture can come only from those who can create good designs. State licensing does not create good designs. State licensing does not insure this most important requisite. This should be the function of the Institute.

Too much time is devoted by architectural schools in an effort to teach students to develop designs for colossal

*From the Journal of the Society of Architects (London).

problems, such as would tax the mature ability of the greatest practitioners. Designing cannot be taught. It is a natural development, which grows out of one's accumulated knowledge, if the individual is naturally constituted to become a designer, and only in that event. It is a creative quality which few men possess. Our students begin at the top of the ladder in architectural schools. Architectural students should be trained, first, in all of the fundamentally scientific elements of architecture, thereby to become proficient, at least in that which constitutes the science of the profession. The schools cannot hope to create designers. They will develop themselves when they have learned the rudiments of architecture. All good architecture, is invention. All men cannot by nature become inventors. All men can become scientifically useful in the architectural profession. Few can become creators of good designs. Men lacking in this ability should not be encouraged in their efforts to design, out of consideration for the architecture of our country.—San Francisco Society of Architects.

The Institute

The Institute at present serves no class. It tries to serve the practitioner. It should serve the public through counsel in all matters architectural. Poor architecture is the result of poor design, as good architecture is the result of good design. Both are created by the architect engaged, and without the client's opportunity for counsel with the Institute. The Institute should be accredited with the responsibility for directly influencing American architecture. The present system merely encourages selfishness on the part of the practitioner, without being at all concerned about the quality of architecture produced.

Qualified members of the Institute could render the greatest service to the public in the name of the Institute if properly organized. The Institute should invest qualified members in every community with advisory power relative to community architectural problems, both public and private.

The Institute will always find some pretenders in its membership.

Membership in the Institute should be independent of any other organization, whether chapter or otherwise. It should be based on the standard of qualification only.

One of the most important duties which the Institute has before it is that of creating intimate relationship with the public, whereby the Institute will come into direct touch with all organizations which are working for community progress. They are all more or less interested in the architectural field and should, therefore, receive guidance from a national architectural organization as previously indicated.—San Francisco Society of Architects.

Architect and Builder

The future will produce a closer union between the architect and builder, and the joint conferences will create a better understanding. Architects will be more ready to consult the builder on questions which his practical knowledge and experience have taught him how to handle. The usefulness of this may not at once be apparent, but the experiences of a builder are of a very varied character, particularly in a city like London, bringing problems that have to be overcome, the explanations of which should be available to the architect.

The conferences between the Institute of Builders and the R. I. B. A. will bring the architect more into touch with the workmen's organizations. The architect will recognize that if mutual interests are to be safeguarded, he will not employ a builder who is not a member of his trade organization. In my opinion, if mutual interests are to be upheld, all employers and operatives will have to belong to their respective trade organizations, and, in the opinion of many, the time is not far distant when the architect, builder, and workman will confer together on general questions concerning the craft.

I would suggest, in order to obtain a better understanding of the difficulties to be faced and solved by the builder and his workmen, that the training of the young architect should more often include a period of practical training in the workshops. I am aware that there are difficulties and that time would be taken from the Training Centre, but even if only a short course could be taken in a builder's office during the recess, some useful experience would, I think, be gained.

The same remark applies to the builders, many of whom think that it is only the builder who has his troubles. The would-be master builder should include in his training some period in an architect's office, which, in my opinion, is as important as a period at the bench. Edmond J. Hill, President of the Institute of Builders, England.

Mutual Relations of the Architect, Builder, and Workman

Turning the search-light of our new life upon this old, old trio, we say, "Why this three-legged business?" "What is the third man doing?" "There is a smell of 'middleman' about this affair. Why isn't it a simple deal between buyer and seller?" Which is the useless member of the group?

Obviously not the building owner, for without demand there can be no supply. So it lies between the architect and the builder, and it is quite reasonable in these days of heart-searching scrutiny to ask why should not one or other of these drop out. One answer is that as a matter of fact the experiment has been tried—both ways. Architects have before now acted as contractors, contractors as we know have acted as, or at least without, architects. Strange as it may seem it is possible to argue in favour of the elimination of the third man on the highest possible grounds. You may urge that some of the failure of modern building craft is due to the dissociation of the functions of the designer and of the constructor, and that therefore the architect-contractor, or the contractor-architect, is the very superman we want to set everything right. I have mentioned this point of view because I want to point out first that it is based on a ridiculous fallacy, and further that if it were not there would still remain two very strong reasons against succumbing to it.

The fallacy is this. If an architect contracts for a building it certainly means that besides designing it he conducts the routine of engaging labour, of buying materials, of calling in sub-contractors, of paying wages and of looking after his own profits. But it does not follow that he ever

acts as craftsman or even foreman. Similarly the contractor who plays the architect is very unlikely to be the actual draughtsman of his building. So that the union in one man of the designer and craftsman never comes off after all.

But if it did, what then? It would be found that the limits of time and of human capacity, (after all there are such limits), rendered the performance ridiculous. There would be an apparent gain to the owner of five per cent of the cost, counterbalanced in reality by a tremendous delay, and by a great loss of the energy which ought to have been put into the separate functions now rolled into one. To speak the truth fearlessly the qualities which make a good architect do not always make an able contractor, and I have certainly known, though you may not believe me, first-rate contractors who were not equal to architecture. If for no other reason architects and contractors must both be allowed to continue their existence because even if architecture may seem mere by-play to a contractor most architects are aware that their own art is enough to occupy life, and even if some of us have enough energy and enough of our client's time to spare for personal excursions into stone carving, bricklaying, plaster modelling, and an occasional wiped joint—thereby showing that we are as crafty as we are artful—it remains a fact that we cannot also find time to do the builders' business as well.

The remaining argument is just this. The function of the architect as intermediary between client and builder is a very real function, a function for which there is a need, and a function worth the shilling in the pound which is usually paid for it. I will not here work out this point. Most practical people understand it. Perhaps it is enough to remind the building world of this one consideration. The employment of a builder for any large building is a very important and very serious matter involving the risk of the waste or misapplication of an appreciable sum of money. The relationship between owner and builder during such a transaction is one in which countless misunderstandings can arise. Is it not well, therefore, that this relationship should be eased to the advantage both of owner and builder by the intervention and assistance of a skilled go-between intimate with the needs of one party and with the capacities of the other?

In conclusion you will understand that having brought out and examined these two pieces of our building craft machinery I decide for my own part to clean them and oil them and put them back in use.—Paul Waterhouse, F. S. A.

Architect, Builder, and Owner

My own point of view is a composite,—that of a builder and of an architect. I have taken part in the industry from both points of view, which leads me to the seemingly contradictory statement that both points of view are about the same. As suggested in the syllabi, the architect and the builder are much one and the same in their relation toward the owner (at least they ought to be) and it is the failure fully to recognize this fact that has contributed to much misunderstanding. This, perhaps, applies more particularly to the building of large metropolitan structures. There economy of time ranks in importance with economy of money. However, analysis reveals the proposition to be quite as sound throughout the whole gamut of construction work with which we are dealing in this discussion, and if we admit this almost inseparable relation, it may be well for us to turn and squarely face this partner to whom we are thus attached. He turns out to be very human and very diverse. Disregarding the great mass of him, who is a plodder, we find at the top (and the top is not necessarily marked by bigness) earnest men who, with skill and diligence, are trying to solve scientifically the complications that the business presents. Their first question is for definite facts. "Just what do you want?" runs through the whole organizational structure of a high-grade contracting firm.

If one were to undertake to define "modern construction organization" in one word, one could not do better than to say "forethought." Immediately the mind flies to the function of the architect, and any one of us can turn the question upon himself. Do all plans show the necessary forethought? Are major questions not often left to solution at the site, or at least to a period long after the contract is signed? If they are so left, who is responsible?

First of all, it is not the builder, obviously. How about the owner? Here we commence to get the clue. Where is the architect who cannot recite dozens of heart-rending experiences where the owner, by procrastination and vacillation, has thrown confusion and delay into the work? Who cannot recall decisions delayed from Monday till Friday, and from Friday till Monday, while precious days of fine building weather slipped by? But these twin vices are not accountable for everything. How about the owner's changing his mind, or failing to understand? The whole first complexity reveals itself in this relation. Owners who have never so much as looked at drawings essay to learn a complicated life-occupation in a few weeks over your draughting-boards—deciding important questions offhand, and dawdling for weeks over inconsequential details that hold up drawings and raise Cain generally. All of this is his privilege, but the point is that he should not be permitted to place the architect in the position of arranging a contract so that the owner does not stand the expense involved. Expense both to builder and architect for the wastefulness of the proceeding is so obvious that a reckoning is sure to follow. Therefore, there can be no doubt that one of our foundational observations must be that the owner will have to be better posted upon the essentials of his enterprise, and if indecision and lack of understanding are to be brought to the table by him, he must pay the piper.

To educate the owner, we must, of course, first educate ourselves. How many architects avail themselves of the priceless advice and coöperation that a fine building organization offers? How many have the courage to say to the owner, "On these things I am not so well posted as our builder"? The question will, no doubt, evoke a variety of answers, but we ought to ask this of ourselves about three times over, and about three days in succession before we follow our natural inclination to rush in with a reply. My own experience is that as a builder I was not consulted half enough, and that as an architect I did not consult half enough. Here we find the germ of much of the trouble, and one reading the syllabi, I venture to say, can connect this question directly and indirectly with a lot of the perplexity that those interesting documents suggest.

In the first place, the owner ought to carry his own risk. He enters the proposition as requiring something special—a building embodying his particular requirements, his fancies, and sometimes his caprices. The market for the yet-to-be-furnished materials is variable, yet, to a certain degree, dependent upon the caprice of unmade decisions, and on this the owner sets out to get a price which will bind a contractor, and over him, as mentor, he sets an architect. Surely we have here the fertile ground for discord.

If the owner can be made to see that equity and his own interest demand that he carry his risk, a large part of the question will be solved—but not all. The door is opened for the coöperation of the architect and the builder, but it remains for the architect to enter wisely. The responsibilities appropriate to each side are well understood and need no discussion here. *The moment we remove the project to its proper realm and cease to regard the contractor as a vendor of a finished product, the sooner we will start emerging from our difficulty.* The question arises as to the ability and integrity of the contractor. Again there is at least one tenable solution, and that is to select only the contractor of standing and ability. If architects would give as much time to the study of the contractors and contractors' organizations, their methods and personnel, as they give to the study of comparative figures, they would learn much. One is the study of the live, vital organism; the other is the dissection of the dead anatomy of bygone performances. There will be schools to advocate each method of procedure. I believe that the former is the better.—W. A. STARRETT.

Compensation

It is needless to point out the complexity of a modern architectural business, but it might be pertinent to point out that, as we now practise it, we are, in fact, embracing three businesses in an all-inclusive term when we speak of Architecture. First, there is the Design; next, the putting together, the specification writing, etc., all of which might be grouped under the term Construction of Architecture; and third, there is the Business of Architecture, the commercial aspect of the whole thing, both as to the professional relations of the architect with the owner, and the general business conduct of the office. While these three merge imperceptibly into each other and are interrelated, nevertheless we should recognize their separation if we are to examine our problem. One of the confusions of the business arises out of the muddled merging of these entirely separate functions. It is in this nondescript wallow that we find budding young geniuses starting their own offices, essaying to handle every relation of owner and contractor from the top of a draughting-board, and proving conclusively to the owner that the business is profitable at a fraction of 1 per cent. Perhaps it is in the failure of the profession to recognize the separate kinds of talent here involved that we may find the root of the question that the Post-War Committee is called upon to answer.

Ability to design is properly given first place in architectural consideration, but it is also apt to throw the first anomaly into the problem. Men with artistic genius must almost necessarily spend their early lives in uninterrupted study of their art. Many of these emerge and equip themselves in the other branches of their professional work. These become the leaders of the profession, and around their activities the code of the Institute is drawn. Then come the men of equal talent in design, but of less business ability. A sense of comradeship demands that they shall be equally compensated in any general scheme of compensation. But following them come men of lesser ability, their life-problems complicated by peculiarities of temperament. And so we see the profession, a sort of procession led by able leaders rendering splendid services to their clients, tapering off through all variations of genius, till we reach the lower half of the column composed of the mediocre, with the dubs bringing up in the rear. But the anomaly comes not in the human aspect of the procession, which, in fact, is no different from any other business procession, but in the fact that the leaders have set the standard of compensation for all, and it is this dead weight they are carrying that is causing most of the trouble. This is no criticism of method, for the code of the Institute is recognized universally as a splendid standard, but it is in its practical application that the business world finds it so vulnerable. Why should the first 20 per cent—we can make it any per cent we like and comfortably assign ourselves a position in the procession without the least moral qualm—have to lug along this handicap, and by its own code of ethics keep open a vulnerable point, which, when exposed to the mediocrity of the tail-enders, makes the code seem ridiculous? Does it not arise in part from the failure of the profession to recognize and stimulate the recognition of the three functions it performs?—W. A. STARRETT.

Compensation

The institute's attitude toward the public assumes the placing of all practitioners on the same plane of proficiency through uniform compensation policies. As all practitioners are never equally proficient, why not abandon compensation provisions, and allow each practitioner to establish the value of his own services?

As individual ability and nature of service vary, therefore the rate of compensation should not be uniform, nor should the Institute attempt arbitrarily to provide a minimum rate of compensation. The Institute usurps individual freedom in attempting to prescribe a uniform charge for results, the quality of which it cannot insure to the client. Every practitioner should be obliged to determine the value of his own service.

Many low-grade practitioners have joined the Institute, to insure a higher rate for service than they can otherwise obtain. They impose upon the public, using the prestige gained through Institute membership. The Institute should concern itself with quality of membership, not quantity. The schedule has never barred competition as to price between architects. Every architect should charge only what his services are actually worth. The Institute should not endeavor to suggest the value of any practitioner's service. Such values necessarily vary according to quality and character, and should, therefore, be determined between architect and client.

If the Institute continues to make recommendations concerning compensation, then a proportionate increase should be assigned for preliminary service.

Preliminary service demands ability to create an appropriate design. Preliminary service necessarily embraces that which is most valuable to the client, and should be charged for accordingly, whether in competition or otherwise. Preliminary service in competition is of equal importance to preliminary service without competition. It represents the same degree of service and importance and should, therefore, not be discriminated against.—San Francisco Society of Architects.

The Competitive Contract System

The house which we have to put in order for the great post-war era into which we are advancing, is the great home of the art and craft of building. That house is full of appliances, and every one of these appliances, from the driving wheels to the meanest cogs, should be considered well before it is cleaned and lubricated and put into fresh use.

There are two features in our machinery of daily work that I venture to pass under review in this allotted quarter of an hour. One is the prevailing system of competitive tendering, and the other is the relationship of the architect to his client and to the client's builder. I want us to ask ourselves quite frankly whether these bits of machinery are good enough to go on with, and to give our answer as frankly.

It seems a fine thing to sweep away the system of competitive tendering. The faults of the system are so obvious. We set contractors to run a race not of excellence but of money. We say to them "come and struggle together for the prize of a job: the prize will be given not to the best builder among you, but to the cheapest builder, or rather to the cheapest estimator." We seem to be implying that neither we as architects, nor employers as owners, care how the work is carried out so long as it is got through at rock bottom price. It might be said that we were by such a system only making trouble for ourselves. For the cheapest man—the winner—is, it may be urged, the least likely of all the competitors to be able to put into his work that extra margin of quality which makes and marks the difference between a good building and a bad one. I think that if we architects were left to ourselves and to our own inclinations we should to a man give our vote for the abolition of competitive tenders. Don't we know the luxury of working through a building enterprise with one of those old friends in the building world whom most of us middle-aged architects are happy to possess? Don't we know the pleasure of realizing that this old friend has been put in without competition on our own nomination, but with the perfect acquiescence of a trustful client who wants the best work out of both architect and builder? Must we not acknowledge that there is a pleasure about such work for client, architect, and builder, which is by no means always found in those undertakings whose birth is presided over by a sordid money struggle? We do, indeed, most gratefully admit that work under conditions such as these has often been our happiest and our best, and that though the contractor may have been paid a trifle above lowest rates the bargain between owner and builder has been a fair one and satisfactory to both parties.

But can we look upon such a system as the normal one; and would it be well for builders and employers if the competitive system were swept away? I believe not. The builder in the ideal case just described must be paid on a reckoning of some sort; and that reckoning must be made up and checked in one of two ways. It must either be on ordinary bill of quantities priced at the start, as if in competition, and adjusted by a quantity surveyor at completion, or it must be a bill worked out on the prime cost and percentage system. (I do not regard the priced schedule system as a third method, for it is merely a variation of the priced quantities with the difference that the client gets no lump sum figure at the start.)

Now whichever of these schemes is adopted it is quite clear that unless confidence is to be carried to unusual and unreasonable bounds the builder's accounts have got to be checked by either an architect or a surveyor (or both) representing the owner. How is this checking to be done? The opinion of the surveyor as to the reasonableness of this or that price must be based upon some standard; and standards if they are fair can only be set up by some sort of competition. Competition exists in all healthy trades, and as builders cannot compete with one another by placing, like drapers and grocers, ready-made, priced products in a shop window, they must conduct their rivalry by giving competitive prices for certain objects, the identity of which is fixed by a specification and by quantities. I conclude, therefore, that if for no other purpose than the establishing of an average of current costs, competition in price must continue to exist alongside of the continuation of that pleasanter method in which the builder is paid for his work without winning it on price. But there are other reasons also for the retention of the competitive tender, and perhaps the chief of them is that without it new and young firms would find it difficult to gain an entrée into the building market: for the public having no price criterion to go on would perforce be inclined to choose their builders solely or mainly on grounds of well-established and long standing reputation. For many buildings in fact non-competitive payment is excellent, indeed advisable, but the abolition of competitive tenders or of competitive pricing on schedules would lead to random pricing, capricious increases of standard, disputes, and in fine to a state of uncertainty in which neither owner nor builder would be the gainer.

To suggest that the prime cost and percentage system of payment is the solution of all difficulties is misleading. It might be urged that the healthy competition between firms could be simply exercised by allowing them to quote against one another the percentage each is willing to accept on prime cost. But with every intention of honesty on everybody's part there is a difficulty in the very basis of the system. Prime cost! What is prime cost? I insult nobody when I point out that however loyal and honest a builder may be the prime cost and percentage system offers him no inducement to buy cheaply, and certainly encourages the builders' merchants to charge as highly as possible. If I were speaking with unguarded tongue I would suggest further that "prime cost," which sounds so final, is in the realities of commerce, elastic.—Paul Waterhouse, F. S. A.

The Contractor

The architects may well view the contracting industry as a great partner in their enterprise, and it is for them to

see to it that keen judgment is exercised as to who performs well and faithfully, and who is dilatory and undeserving.

Already this responsibility is upon the profession, and the question everyone ought to ask himself is whether he is taking proper steps to appraise the value of a contractor's services. If his opinions are based simply on personal liking of some individual in the contractor's organization, or willingness of the contractor to do little things not specified, or simply the personal satisfaction that comes from liking everybody, he is not only not doing his duty, but he is, in fact, betraying one of his most important responsibilities. Conversely, the dislike of a contractor because he insists on his rights, or because he views the work as too much of a business proposition, brings into the whole relation one of the most damaging arraignments of the architectural profession. This ability to withhold favorable, or indeed even just comment, has developed into the proportions of a scandal against the architectural profession and is reponsible for more evil in the relations of these two partners than any other one phase of their work together. Contractors generally have not fully recognized this situation, and they are apt to regard the favor of the architects as something that gets them work. As a matter of fact, very few contracts go to any specific contractor, under present circumstances, through the favor of the architect for that contractor. The canny owner makes his own appraisal of the propositions as they come in, as he properly should. The fact is that it is the negative attitude of the architect that the contractor fears, and we thus discover a certain element of the profession practising a sort of tacit blackmail, through the fear of the contractor that the architect will "knock" him.

My government work in Washington during the war brought this whole situation forcibly to my attention. The first questionnaire sent out under the auspices of the Institute received splendid response because it asked the architects to give the names of well-organized contractors, and the detail of the blank form brought out specific information that was desired. But in the following phases of the work it developed that when the question was put as to the standing of any one contractor, the answers degenerated into perfunctory commendations of everyone in the country who laid claim to having built anything; or, we would receive the most scathing criticism of some concern about which we already held abundant testimony as to its good standing. Tracing down these opinions, favorable or otherwise, we seldom found anything but unsupported personal opinion behind them. Little was known as to the past records of the personnel; little of the structure and functioning of the organization. There seemed to be no ideas as to what constituted good organization, and to what extent such organizational schemes as were adopted were put to effective use by contractors. Generally, the whole opinion rested on the general statements that So-and-so was a "good man," or that he "knew his business," etc. Is it any wonder that the business world calls us unbusiness-like?

The criticism herein suggested may bring the rejoinder that no one individual could be expected to know the organizational details of a business that requires all the time of a contractor to follow. However, it suggests that we might properly take a closer view of our own business set-up.—W. A. STARRETT.

Organizing the Three Functions of Architecture—Design, Construction, Business

But why not adopt a system or code that recognizes more clearly, and is designed to compensate more equitably, the three functions of architecture separately? Why not employ a great designer for his skill, freeing him from the extraneous and sometimes irksome toil of the construction of architecture and the business of architecture?

On the basis of separation into its three functions, the profession could more clearly present its case. Would there not be some advantage to the man of ability in any of the three branches, if he were deficient in the others, if he frankly stood on his merits in the work in which he specialized? Would not a Stanford White design have commanded the same admiration and the same high compensation if it had not had the great architectural organization behind it? Perhaps it would not. Perhaps the three coördinates of architecture are inseparably linked together; but if so, the profession must stagger along under a handicap not carried by any other business.

After all, the cold fact is that, as a business, architecture is not particularly profitable. Occasional large commissions are frittered away in the expense of preparation for, and drift after, the enterprise.

It is in this light that we can better view our relation with the contracting industry, and the necessity that is upon us to appraise it properly. A strong, scientific construction company could supplement such a separation of functions of architecture to a marked degree. It is not too much to say that it could undertake, in some cases, the functions of the Construction of Architecture and even the Business of Architecture. To some, this statement will come as a shock, but it is, at least, the forecast of a reality, for, as a matter of fact, many of the large construction companies are seriously considering taking over these two latter functions in many cases. The trouble with the situation is that unless the architectural profession recognizes this sign of the times and adjusts itself to this growing tendency, it may find itself entering an era of competition with an industry that already occupies a superior position in the field of pure business.

It is useless to wail about the baneful effects that might arise from such an outcome. It is business and not ethics that we are serving when it comes to large, modern, commercial structures, and efficiency is the keynote. The architectural profession has within itself all of the essentials of efficiency, and, rightly applied, they can be used to improve a situation that, in the present drift of things, is becoming confused. This improvement will come through the better posting of the owner as to his responsibilities, the scientific recognition of the merit of the profession's inevitable partner, and the separation into its essential features of the complicated functions that the architect performs.—W. A. STARRETT.

News Notes

New Zealand Conference Decides That Housing and Town Planning Are National Problems

The New Zealand Town Planning Conference and Exhibition, appears to have been a brilliant success. More than 250 delegates assembled from all parts of the Dominion. The conference was organized by the New Zealand Government, and occupied five busy days of papers, lectures, discussions, and resolutions. The delegates unanimously agreed to recommendations in favour of the creation of a Town Planning and Housing Department, controlled by an expert town planner, and established by a Town Planning and Housing Act, applicable to all parts of the Dominion. The Hon. G. W. Russell, Minister for Internal Affairs, undertook to recommend to Cabinet the adoption of these proposals. Another important resolution adopted by the conference recommended that the Government recognise the housing shortage as a pressing national necessity, and coöperate with local bodies in building houses on garden-city lines; also that the Government set aside £1,000,000 to subsidize operations of councils in building new houses. It was stated that New Zealand required 10,000 new houses, for which the Government would need to find £3,000,000, both as subsidies and advances to local bodies. Resolutions bearing upon the financial aspects of town planning were also carried, which decided that the cost of the town-planning department, including the salary of the expert, should be paid by the Government; that the cost of carrying out local schemes should be borne by the district affected; but that the money required should be provided by the Dominion Government at the lowest possible rate of interest, the local bodies being called upon to pay only interest and sinking fund; and that, in addition, smaller councils in special circumstances should be assisted by a direct grant by the State. It was also decided that under the Town Planning Act it should be made compulsory, when any area exceeding five acres, was subdivided, that 10 per cent thereof should be vested by the owner in the local authority for open spaces and public purpose.

Some Recollections of the Building of the Tennessee Capitol

Mr. A. C. Bruce, of Atlanta, one of the oldest of American architects, and who lived in Nashville during the building of the capitol, has sent us a newspaper clipping in which are recounted some of his recollections. We republish it as of interest:

"It was in the early fifties I began to be interested in the state capitol. I knew Mr. Sam Morgan well: he was chairman of the commission and was deeply interested in every feature of the work.

"After I had been at work for several years with my father, who was a builder, I became interested in the study of architecture. There were no schools in that day like the Massachusetts Institute of Technology, so I had to look for the old publications on the orders—all that was available. Then Messrs. Warren and Moore, with whom I worked, secured the services of a distinguished English architect, Mr. H. M. Akeroid. Many buildings in Nashville now stand as his masterpieces in architecture. I would see him in his office after work hours and help him in his specification and detail work. After that time, Mr. Strickland, with his great plan on the state capitol, frequently mentioned in the papers, reported progress on the building. When quite a young man I made Mr. Strickland's acquaintance. He was very nice, and began to be interested in me, as I told him I was expecting to be an architect some day, and he told me to come and see him often in his office. I looked over the plans and general details of the work as he would show them to me. I remember particularly the model of the roof to the capitol; it was beautifully done by one of Nashville's expert carpenters. Made to one inch scale, showing every piece of timber required in the roof; showing the length, size, and position. I think it was about six feet long; no iron except the bolts, rods, nuts and washers, so that when it was framed to full size by the carpenters, it fitted to the building and is now in position strong as ever, carrying the roof for fifty years or more. As to the foundation, I do not know anything.

"One of the striking features of the construction was the walls, commencing four feet thick above the foundation. Each stone finished on inside same as the outside and when laid in place the wall was finished, and required no furring or plastering. This construction was carried out through the construction of the building, showing a smooth rubbed face on all inside walls. The ceiling to the basement was formed by groined brick arches to carry the floors above, giving the best construction possible in a building. The first floor consisted of the state offices, as now occupied. The second floor was approached by a grand marble stairway leading to the rotunda on the second floor, where the fine cut stone work formed the base of the dome, some of the stone very large and cut to the various angles required by the rotunda, giving the very best stone work possible.

"One of the unique pieces of work in the erection of the building was the cavity left in the north wall, second story portico, to receive Mr. Strickland's body when he should pass away. As a boy, in running over the building on my visits, I often climbed into the cavity that was left open to receive his body. I was present when Mr. Strickland's body was placed in the cavity and the tablet sealed for all time.

"The magnificent monolithic columns forming the galleries over the committee rooms are beautifully proportioned and finished with elaborate carved capitals. I heard it said at the time, that the state convicts, who did the stone carvings were pardoned by the governor when the building was finished. Some of the stones forming the main cornices of the building were as large as 16 x 20 feet, cut and fitted in their place without the sound of the hammer or chisel.

"The building, taken as a whole, stands as a lasting monument to the skill of the distinguished architect and is the pride of all Tennesseans who visit it daily throughout the years."

Changes at the Cornell School of Architecture

F. Huntington Bosworth, Jr., of New York, has been appointed Dean of the College of Architecture in Cornell University, vice Prof. C. A. Martin, resigned. Mr. Bosworth will have charge of design.

A Park Design Competition

The Municipal Art Society of New York is to conduct a competition to secure designs for the improvement of the small triangular park in Greeley Square, bounded by Broadway, Sixth Avenue, and 35th Street. R. H. Macy & Company are offering, through the Municipal Art Society, first, second, and third prizes for such designs as meet with the approval of the jury.

The architect or draughtsman submitting the winning design will also receive, if it is carried out, compensation for his services in its execution.

The competition is open to all architects and draughtsmen living in or having a place of business in, Greater New York. Six weeks will be allowed for the preparation of the drawings; the program may be obtained up to and including September 29, from the secretary of the Municipal Art Society, 119 East 19th Street, New York City.

The Significant Attitude of New Zealand on Housing and Town Planning

In presenting the new Town Planning Bill to the New Zealand Conference, referred to elsewhere in this issue, the Hon. G. W. Russell, Minister of Internal Affairs, said the following remarkable things:

"The wily land speculator, in selling farms and suburban areas for residential purposes, has taken little or no account of whether his sales and resultant profits fitted in with either the lay-out of the city or the adaptability of the lands he sold to drainage or water-supply. Such questions did not trouble him. His primary object has been to secure the enormous increase in value that has been obtainable through the necessity of workmen residing as closely as possible to their employment.

"It is time that a stop was put to this by legislation being passed which will make it impossible for any person to sell residential areas unless provision is made for the properties fitting into a clearly defined scheme of roading, drainage, water-supply, lighting for the future, even though their necessity at the present may not be so apparent. Coupled with the public utilities I have mentioned is one other—namely, that from every block of land which is sold for residential purposes there should be set aside by the owner as a gift to the people necessary reserves for public utilities, such as schools, post-offices, parks, recreation-grounds, and open spaces. The property-owner who is going to draw large profits from the community must, in my opinion, be made responsible for the needs of that community in the matters to which I have referred. This is a most important phase of the whole subject, for the reason that the village of today in ten years hence is the township, in twenty years after it has possibly become a town district or borough, and fifty years later may be the prosperous miniature city. On us of this generation rests the obligation of seeing that those who come after us are provided by proper town-planning schemes with those things which make for healthy environment, recreation areas, and the absence of slums. How these things may be best secured by legislation and the creation of a healthy public opinion is the business of this Conference to consider.

"One of the greatest problems of the present day—and it has been tremendously accentuated by the war—is that of providing for the housing of the people. The increase in land-values caused by the growth of the cities is one of the primary causes of high rent. Next in importance comes the increase in the cost of building-material of all kinds, more particularly timber, plus the increase of the cost of labour caused by the higher standard of living of today as compared with past years.

"Two attempts have been made to supply the want of homes in New Zealand. Under the State Advances Act down to the 31st of March, 1918, £3,473,000 had been advanced to workers to enable them to purchase or erect their homes, the total number of loans outstanding on that date being 9,511. Also, 648 workers' dwellings had been erected by the State under the Workers' Dwellings Act, 1905, and its amendments. The power given to Municipal Corporations to erect workers' homes has not been availed of. I am satisfied that this country must embark upon a great scheme for housing the people, and that we must "talk in millions" on this subject if we are to have a happy and a contented people. Revolution and anarchy are not bred in the houses of men who have happy homes and delightful gardens. Its spawn comes from the crowded tenement, the squalid environment, and the slum."

New Members Elected

Frederic H. Best, Cleveland Chapter.
Olaf W. Cervin, (Chapter Pending).
Franklin T. Georgeson, San Francisco Chapter.
Henry Fort Hoit, Kansas City Chapter.
Bert D. Keck, Minnesota Chapter.
Leif Jenssen, Minnesota Chapter.
Joseph D. Leland, Boston Chapter.
Eugene Waterman Mason, Jr., New York Chapter.
Edwin H. Price, Kansas City Chapter.
William Warren Sabin, Cleveland Chapter.
Harlen E. Shimmin, Cleveland Chapter.
Vance W. Torbert, Washington, D. C., Chapter.
Joshua H. Vogel, San Francisco Chapter.
Franz C. Warner, Cleveland Chapter.
Richard L. Watmough, New York Chapter.
M. N. Willis, Minnesota Chapter.

Structural Service Department

SULLIVAN W. JONES, *Associate Editor*

In connection with professional societies, organized bodies, and the following Committees of the Institute, working toward improvements in building materials and methods, and higher ideals in the sheltering of humanity:

BASIC BUILDING CODE, CONTRACTS, FIRE-PREVENTION, STRUCTURAL SERVICE

Roofing, continued

Felts and Fabrics

Felt Production. Felt used in roofings is produced in a comparatively few large plants. Some of these plants also produce saturated felts and prepared roofings, but, generally speaking, the manufacturers of bituminous roofings and roofing materials purchase unsaturated felt and subsequently saturate it with their own bituminous compounds.

The reason that most roofing manufacturers purchase their felt is that the mechanical equipment for its manufacture is expensive, and economical operation requires a volume of production greater than the demand of any single roofing manufacturer. Competition has forced the roofing industry, like many others, into specialization and centralization.

Wool Felt. Felt used in roofing and in waterproofing is commonly referred to in the market as "wool" felt. The use of the adjective "wool" is without justification. It is an inheritance from the time when such felts were manufactured principally of rags, which were used pretty much as they came, containing an appreciable percentage of wool. But at present, if wool gets into the felt of commerce, it does so by mistake. All rags are carefully picked over at the felt factory and the wool rags are separated and sold for "shoddy." Its value prohibits its use as one of the ingredients of roofing felt, except in infinitesimal quantities is some cases.

An examination of the felts now procurable discloses the fact that most of them are composed principally of wood pulp, straw, and a little cotton.

Chemical Properties. A brief consideration of the chemical and physical properties of wool, cotton, and wood pulp as constituents of felt for roofing will help us in reaching reasonably accurate conclusions with respect to the relative merits of the several materials used. In considering the chemical properties of each of these materials, it should be borne in mind that some of the fluxes used in making asphalt saturants for felt are slightly acid, and also that rain-water falling upon roofs, particularly those in cities and near industrial plants, carries either acids or alkalies in solution.

"Chemically, all vegetable fibers are composed of cellulose, but frequently the pure cellulose is contaminated to a greater or less degree with 'altered' products. Such combinations of pure cellulose and 'altered' products are designated bastose, and they may constitute the whole fiber, or the bastose fiber may have a covering of pure cellulose.

"Cotton fiber contains 90 per cent pure cellulose, the balance being water. Jute, from which burlap is manufactured, is composed of bastose and contains no pure cellulose. Wood fiber from which wood pulp is made, is composed almost wholly of cellulose, with a small percentage of water and traces of altered products.

"The effect of air, moisture, acids, and alkalies is different on each of these materials. Vegetable fibers of pure cellulose are not affected by even strong alkalies, whereas animal fibers (wool) are speedily disintegrated. On the other hand, certain acids, sulphuric and hydrochloric, which cause the disintegration of vegetable fiber, do not markedly affect animal fiber.

"Jute fiber, because of its original large moisture content and the small percentage of even 'altered' cellulose material, rapidly dries out and must receive special treatment with oil to insure flexibility for the weaving of burlap. When the woven fabric is subsequently impregnated with bituminous materials, unless all of the oil used in the previous treatment is driven out, complete impregnation cannot occur; and if any of the 'jute oil' remains, it acts injuriously upon the impregnating or saturating material, which induces disintegration of the jute fiber itself. This is not the case with cotton fiber. It would appear, therefore, that the impregnation or saturation of a jute fabric would actually tend to impair the life of the material."

Theoretically it might be claimed that the destruction of the conveying medium after it has served its purpose would be of little moment, and even might constitute a recommendation in favor of its employment. This would be true were it not for the fact that the destruction of the vegetable matter incorporated in the waterproofing coating has a direct detrimental affect upon the waterproofing material. The medium used for carrying or binding together and making homogeneous the actual layers or coatings of waterproofing material should be as stable a one as it is possible to secure.

Durability. From the chemical standpoint, the suitability of felt for use in bituminous roofings depends upon the proportion of wool and cellulose in its makeup, since the influence of the destructive agents upon its life varies with the percentage of these two materials present. If it might be previously determined with certainty that the roofing would be exposed to the attack only of alkalies, the felt used might with safety be made wholly of cellulose. But, on the other hand, felt containing no wool will be distinctly affected by acids. The entire absence of both wool and pure cellulose, as in the case of jute, will cause it to rot even under the attack of air and moisture.

The system under which roofings and roofing materials are distributed to the consuming public make it impossible for the manufacturer to anticipate the peculiar conditions under which his product will be expected to give service. He therefore considers only average requirements, but that very fact would seem to demand the use of a reasonable percentage of wool fiber in the felt entering into his product. Doubtless he would do this if the price did not prove an insurmountable barrier in a competitive market.

A pamphlet entitled "Facts about Prepared Roofing and Asphalt Shingles," published in 1917 by the Roofing Manufacturers' Association, contains this statement:

"The felt base (for prepared roofings and asphalt shingles) must have unusually high absorbent qualities so as to make up and retain a maximum amount of waterproofing saturant. It is not necessary that a large percentage of wool be contained in this felt; in fact, a more absorbent, stronger, and better suited felt can be secured with but few wool fibers present."

In view of the reasons given for the very general absence of wool, in "wool" felt, and in further view of the summarized opinions of commercially disinterested experts with respect to the value of wool as a life-giving constituent in felt, the reader may well ask himself whether the statement by the roofing manufacturers quoted above is not an attempt to make the omission of wool from felt appear to be the result of conscientious effort to improve the product rather than a response to the irresistible power of the competitive system of production to cheapen the product.

Physical Properties. The physical properties of a suitable conveying membrane for the bituminous waterproofing materials used in roofings are flexibility, strength, durability, and capacity for saturation. Obviously, the woven fabric of cellulose fiber, or of fiber composed of cellulose and wool, will best meet these four requirements. In the manufacture of prepared roofings and asphalt shingles, flexibility and strength in the felt or fabric are not of great importance. But in conveying membranes for built-up roofings, all four physical properties become of the utmost importance.

The flexibility of a conveying medium depends principally upon the length of the fibers of which it is composed. The flexibility of any woven fabric is superior to that of felt, and particularly of felt composed almost totally of extremely short fiber, such as wood pulp. A flexible felt must contain a large percentage of cotton or other fiber which is itself flexible and possesses tensile strength. The difficulty commonly experienced in fitting felts around the corners and angles formed by curbs and other roof superstructures is evidence of the lack of flexibility in ordinary roofing felt.

Impregnation. Thorough impregnation of the conveying medium as a protection against disintegration should be a cardinal requirement. A mere coating or partial impregnation fails in degree to give the protection demanded. A dense material, like felt, no matter of what materials it is composed, cannot be as easily and as thoroughly impregnated with a waterproofing compound as can an open-mesh woven fabric. Thorough impregnation of felt, and particularly felt containing a large percentage of wood pulp, can be secured only with a saturant of great fluidity, and fluidity is secured by cutting or thinning the bitument with light volatile oils or by heating it to high temperature or by thinning and heating. To avoid charring the felt the saturant is usually made fluid by both thinning and heating.

The cost of cotton drilling prohibits its use for roofing purposes. Burlap is an inferior material and its use is justified only in cheap roofings of short life for temporary structures. Felt, to give long service, under any conditions, to possess strength and flexibility, should contain both wool and cotton fiber in appreciable percentages. But the cost of such felt would be high, and, to get it, the consumer must expect to pay the price.

Asbestos. Felts composed of asbestos fiber are used by a few manufacturers of prepared roofings, and are also used to a limited extent in built-up roofings.

From the standpoint of durability, asbestos felts are valuable. They will not decay, and are little affected by dilute acids and alkalies. They have, however, a very small capacity for saturation with a liquid bitumen, and should be used more in the nature of a protection to the membrane of waterproofing material than as a conveyor for it. Asbestos fiber, by reason of its capillary structure will hold moisture for very long periods, and this characteristic must, when the material is exposed to the weather, have a slightly deteriorating effect on the bituminous material with which it comes in contact. (See page 377, Journal of the American Institute of Architects, August, 1919 issue.) The short asbestos fiber on the surface of such felts is readily loosened, and, in the case of pitched roofs when the exposed surface of the roofing is of asbestos felt, it is not unusual to find an accumulation of asbestos in the gutters, washed down by a heavy rain. For the same reason the material will not withstand the wear of traffic.

On the other hand, its use produces a roof possessing a high power of resistance to fire, and this quality has been recognized in the Underwriters' Laboratories' classification of roofings.

Another advantage in the use of asbestos felt when exposed on the roof surface is its insulating property. Its cellular structure and its color (light gray) both contribute, the former by resistance to the transmission of heat or cold, the latter by reflection, to effecting an appreciable stability of temperature beneath the roof structure.

(*Discussion on Roofing to be continued*)

The Pooling of Experience

The Needs of the Profession. Each month the Editor of the Structural Service Department receives a number of questions from readers of the Journal relating to the selection of materials, the choice of structural methods, and matters of practice. Some of these questions lead to inquiries of general interest and importance, and many of them might be readily and fully answered if the questioner had access to the knowledge won from the experience of others. Nearly every problem of construction has been successfully solved by someone through the process of "trial and error," but the wisdom thus gained is a benefit to him only who has had the experience because there is no medium in the architectural profession for recording and publishing these facts as established by experience.

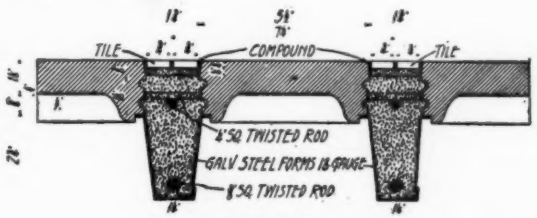
In this respect architecture is far behind the other professions. When we note the fullness of detail with which the results of experience and research are published in the proceedings of the engineering societies, in the medical journals, and the manner in which all legal decisions are preserved for reference, some realization is gained of the unnecessary difficulties and avoidable limitations of knowledge under which the individual architect practises his profession.

The fact that questions are continually asked, and that some of them cannot be fully answered by the Editor or from the experiences of those with whom he may conveniently consult, seems to indicate clearly that with the coöperation of the Journal's readers, the Structural Service Department might be made an exchange or clearing-house for ideas and advice, and thus perform the useful function of an agency for syndicating the knowledge which experience gives. Success in this undertaking, it must be understood, however, depends upon the active coöperation of the readers of the Journal.

A Unique Experience in Swimming Pools. The first matter submitted for consideration and advice has to do with the failure of a swimming-pool.

H. G. Emery, A. I. A., reports that after two years of service, the swimming-pool in the Y. M. C. A. building at Greenwich, Conn., has been abandoned because the bottom, which is of vault-light construction, has developed serious leaks due to the failure of the vault-light glasses. Mr. Emery asks for information which will help him to decide the causes of failure and to determine whether it is safe to renew the construction, taking precautions to prevent a recurrence of the present difficulties, or whether the type of construction employed is unsuitable for the purpose because of inherent structural faults which cannot be overcome.

The pool is of standard dimensions. The bottom is of reinforced concrete vault-light construction, designed to safely carry the water-load. The purpose of using the vault-light bottom was to illuminate the pool from beneath. There is a free circulation of air in the space below the pool where the lamps are installed, and there is practically no difference in the temperature of the water in the pool and the air beneath. The water has been kept at a constant temperature.



SECTION-FIG. 1

The vault lights are 5½ inches square, cast glass, recessed on the under side and manufactured by the Jeanette Glass Company. The lights are solidly bedded in the supporting concrete. There is 1¾ inches of concrete between the glasses, and this, with the supporting concrete below, forms a beam 4¼ inches deep (see Fig. 1). Neither the beam members supporting the glasses nor the main supporting structure has shown any measurable flexure or settlement.

About two weeks after the pool was first filled, some of the glasses developed internal fractures. As time passed the same defects developed in nearly all of the glasses and gradually extended until they reached the surface, resulting in leaks. After that the surfaces of the glasses began to spall off in much the same manner as is frequently observed in connection with the lenses in sidewalk vault-light work. The condition finally became so bad that the pool was abandoned.

Possible Causes. There are a number of possible causes or combination of causes for such a failure as Mr. Emery describes. Among them those that appear to be the most probable are:

Internal stresses in the vault-light glasses due to imperfect annealing.

Progressive expansion of the concrete due to continuous emersion.

"T" flange flexure in the concrete supporting members.

Five samples of the glasses used were taken at the time of delivery, and are in the possession of the architect. These will be examined under polarized light to determine the presence or absence of internal stresses. Dr. Alexander Silverman has given his opinion that the failure could have resulted from imperfect annealing of the glasses. Nathan C. Johnson has been consulted with respect to the behavior of concrete under continued emersion, and E. E. Seelye has been asked to study the question of design. Mr. Seelye makes the following statement:

There is a high compressive stress on the glass, due to flexure. Because of the transverse joints being filled with composition, this stress is concentrated on the lower surface of the glass and on the wall of the dome below the plate.

Assuming that glass is one-fifth as elastic as concrete, the stress on each dome is about 4,000 pounds for a 4-inch head, and 8,000 pounds for an 8-inch head.

While my authorities indicate that this stress is well within the safe compression strength of glass, still I feel fairly confident, on account of the low plane of application of this stress, i. e., mainly on the walls of the dome, that a tensile stress sufficient to rupture the glass is set up in the top surface.

However, I am not sufficiently certain but that I think a test would be necessary to prove it.

Opinions as to possible causes of the failure will be appreciated by both Mr. Emery and the Editor. A further report will be published in a subsequent issue.

More on Standards

Why Do We Have Standards? In the discussion on "Standards" published in the July issue of the Journal, reference was made to the Underwriters' Laboratories' standards and label service, and to their influence or tendency toward leveling the quality of the product downward to the lowest acceptable standard. To illustrate the result of this leveling tendency, we pointed to conditions prevailing in the hollow metal window industry and in the electrical industry.

Since the publication of this discussion, it has been stated that the condition above referred to would have developed quite irrespective of the Underwriters' standards and label service, because a large percentage of new construction is speculative, and because the owners of and contractors for such construction are, therefore, interested only in low first cost and quick sales. It is claimed, also, that the competitive bidding for contracts has effectively prohibited the purchase of the higher-priced quality products, because, either through lack of interest in or knowledge of quality the average consumer purchases on price.

There is no difference of opinion between those responsible for the statement on standards and their commentators as to the fundamental reasons why consumers very generally neglect to give consideration to those characteristics which determine its value in the ultimate sense. In the July discussion it was stated that responsibility for the demand for Underwriters' labels on anything that functioned temporarily as a window, and for "approved" electrical products, did not lie with the Underwriters' Laboratories' label service or with the manufacturers, but with the consumer who purchases without knowledge or consideration of those characteristics which give the product its value.

The problem of standards arises primarily because of the system under which both producer and consumer battle for a maximum profit, without regard for the injury they may work upon society as a whole. In admitting the need for standardization, we confess the necessity of legislating quality into the product because we cannot substitute the desire to serve for greed as the incentive in business.

The problem of standards is very much with us, and it must be solved in terms familiar to the consumer, that will aid him in purchasing value up to the limit of his ability. The standards established by the Underwriters' Laboratories' and the labeling of products, if judged from the standpoint of results and not of theory, certainly do not meet this need. The subject is a large and complex one, and the further discussion of it in this Department will result, we hope, in a clearer understanding of what the label really represents in the way of inspection and quality, and perhaps, also, to some corrective measures by both producers and consumers.

Lumber Standardization

On June 30, the lumber interests met in Chicago for a conference, looking toward the adoption of universal standards pertaining to commercial lumber marketable in the territory of the United States. These interests found themselves in harmony as to the advisability of adopting universal standards, and each separate faction expressed willingness to coöperate in bringing about the desired end. Meeting in a coöperative spirit, agreeing on the object to be accomplished, they took the logical step toward bringing about the desired end by placing the whole matter of drafting tentative standards in the hands of a competent technical committee, with instructions to conduct a careful research, to gather data, to hear arguments on all sides of the question, and to prepare a practical report which could be adopted by all interests involved.

This report, when completed, will constitute an authoritative textbook on the subject of commercial lumber, and will make uniformly available authoritative knowledge on proper standards of size, contour, and grading of commercial lumber. The conference marks a notable event in the history of the lumber industry. Diverse and formerly antagonistic elements have agreed to the adoption of common standards, even though each has to surrender some of his own pet notions and practices for the benefit of the community.

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Refinite Company Making Good on Guarantee to Customers

Manufacturer of Water Softeners Defends User of Its Apparatus in Infringement Suit Brought by Competing Concern

Assumes All Expense and Gives Full Protection

IN A RECENT ISSUE of this magazine, we advised users of The Refinite Water Softener, and the trade in general, that a competing manufacturer had brought suit against a Refinite user, alleging infringement on patent rights.

That manufacturing concern, as you will recall, claimed that the use of zeolites for softening water was broadly protected by United States patents owned by that concern.

You will doubtless be interested to know that the suit, as finally instituted, is ***not against Refinite mineral but against the apparatus.***

We, as manufacturers of The Refinite Water Softener, wish to reiterate that the above court action, which so long had been threatened against users and prospective purchasers of Refinite Water Softeners, was welcomed by us, and that the matter is being handled ***by The Refinite Company.***

This is in accordance with our guarantee, made to the user of our Softener who was made defendant in the case mentioned, and to all other purchasers of Refinite Water Softeners. ***Not one dollar in expense nor one minute of trouble or annoyance will be placed on them.***

We are not surprised that the suit, as brought, is not against Refinite mineral, as Refinite is a natural mineral, not a synthetic or manufactured zeolite.

REFINITE
RIVAL OF THE CLOUDS
TRADE MARK
Nature's Water Softener

We have never had the slightest fear as to the outcome of an infringement suit and the course taken by the above mentioned manufacturer in this case only corroborates our belief.

We promise you that this suit will be pushed to the earliest conclusion and, in the meantime are assuring you that we are doing business as usual and when desired by our patrons, ***furnishing in addition to our own guarantee a surety bond against infringement damages.***

Our financial standing is ample to protect you. We are glad to refer you in this connection to any Omaha bank, or the mercantile agencies of R. G. Dun & Co., and Bradstreet Co.

Our division engineers nearest you are at your service, without expense, and Refinite Water Softeners are still furnishing water of no hardness at a minimum expense.

THE REFINITE COMPANY

REFINITE BUILDING

OMAHA, NEBRASKA

NEW YORK CHICAGO ATLANTA CINCINNATI MINNEAPOLIS PUEBLO KANSAS CITY
SALT LAKE CITY TORONTO SAN FRANCISCO SPOKANE LOS ANGELES BUFFALO

NER

, 1919